U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Wildlife Services

Historic document – Content may not reflect current scientific research, policies or practices.

Blank Page Digitally Inserted

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife

MOURNING DOVE STATUS REPORT, 1971

Compiled by

James L. Ruos

Migratory Bird Populations Station
Division of Wildlife Research

Bureau of Sport Fisheries and Wildlife
Special Scientific Report--Wildlife No. 158
Washington, D.C. · May 1972

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 50 cents
Stock Number 2410-00337

Blank Page Digitally Inserted

CONTENTS

Abstract iv

Introduction 1

Procedure
The Call-Count Survey 1
Quality checks of field data 2
Randomization of call-count routes 3
Physiographic stratification of call-count routes 3
Breeding Density Index 3
Determination of short-term population changes, 1970 to 1971 . . 6
Determination of long-term population trends by State, 1961 to 1971 8
Determination of long-term trends by physiographic region, 1965 to 1971 8
Determination of changes in factors associated with the survey, 1970 to 1971 9
Computer analysis of dove call-count survey data 9
Statistical evaluation of data 9
Determination of population distribution 10

Findings 10
Status of the United States dove population
1971 population distribution 10
1970 to 1971 population changes 10
1961 to 1971 long-term population trends 15
Status of the Eastern Management Unit population
1971 population distribution 15
1970 to 1971 population changes 21
1961 to 1971 long-term population trends 21
Status of the Central Management Unit population
1971 population distribution 23
1970 to 1971 population changes 23
1961 to 1971 long-term population trends 23
Status of the Western Management Unit population
1971 population distribution 24
1970 to 1971 population changes 24
1961 to 1971 population trends 24
Statistical significance of data
1970 to 1971 population changes . . . . . .
1961 to 1971 long-term population trends 25

Acknowledgments 25

References 26

Tables 28

ABSTRACT

Mourning dove population indexes declined from 1970 to 1971 by 5 percent in the Eastern Management Unit, by 4 percent in the Central Management Unit, and by 2 percent in the Western Management Unit. The changes were not statistically significant. The 1971 indexes were below the 10-year means, 1961-70, by 7 percent in the Eastern Unit, 15 percent in the Central, and 25 percent in the Western. Regression analyses of the call-count data for 1961-71 indicate a statistically significant downward trend in dove breeding populations in all management units; mean rates of decline were 1 percent a year in the Eastern Unit, 2.5 percent a year in the Central, and 4.4 percent a year in the Western.

Changes in the population indexes are described by State and physiographic region. The 1971 indexes were generally lower than 1970 in the southern two-thirds of the United States, and generally higher in the northern third. Regression analyses of 11 years' data, 1961 to 1971, indicate a statistically significant downward trend in population in much of the area represented by the northern Great Plains and Pacific border and southern border States. Trends are significantly upward in several scattered mid-latitude States.

INTRODUCTION

Management of mourning doves in the United States is essentially the regulation of hunting to achieve proper harvest. The Call-Count Survey, conducted annually since 1953 by Federal, State, and independent observers on more than 800 prescribed routes, provides population data on which wildlife administrators rely in setting annual regulations. This report describes the methods employed to obtain and analyze those data and presents the status of the breeding population of mourning doves in 1971.

Two versions of the dove status report, one preliminary and one final, are prepared annually. In 1971 the preliminary version was mailed to members of the Dove Regulations Committee a week before the regulations meeting in June at Washington, D.C. This timely distribution was made possible by the promptness of cooperators who sent their data directly to the Migratory Bird Populations Station immediately after completion of their surveys. The present report is the final version and contains additional survey data received too late for use in the preliminary version. As is customary, it will be distributed to all cooperators and will be available to interested organizations and individuals.

Basic data gathering and analyzing procedures used in this report were the same as those used in 1970 (Ruos, 1971).

PROCEDURE

The Call-Count Survey

Field studies have demonstrated the feasibility of the Call-Count Survey as a method for detecting annual changes in mourning dove breeding populations (Foote and Peters, 1952). Since 1953, these surveys have been conducted throughout the United States over a system of more than 800 established routes. Each call-count route has twenty 3-minute listening stations spaced at 1-mile intervals; the routes are usually on lightly traveled secondary roads.

Each route is checked once between May 20 and June 10. Intensive studies in the eastern United States (Foote and Peters, 1952) indicated that dove calling is relatively stable during this period. Call-count surveys are not made when wind velocities exceed 12 miles per hour or when it is raining.

Records are kept of all doves seen or heard calling along the routes. The numbers heard calling during the 3-minute listening periods are totaled for each route to provide the data for determining the population index. The numbers of calls per dove and of doves seen are not currently used in the index calculation, but they are recorded. A detailed analysis of these and other pertinent data from past call counts is currently under study by the Migratory Bird Populations Station.

Studies by Frankel and Baskett (1961) and Jackson and Baskett (1964) have shown that unmated males call at a greater rate than mated males. This suggests that the reliability of the annual call-count census is reduced by the variability in the ratio of mated to unmated males. However, Wight (1964) observed that variations in the ratio of mated to unmated males, where the adult sex ratio approached equality, did not significantly alter the reliability of the dove call count for measuring annual trends of breeding mourning doves. Irby (1964) also found no evidence on his study area in Arizona that the numbers of unmated males materially affected call-count results.

Quality checks of field data

Survey reports were examined to determine circumstances affecting the accuracy with which the routes were run and the data recorded. Records for routes run under unacceptable conditions were not analyzed. Reports on routes completed under the prescribed conditions but containing discrepancies or errors, or lacking data, were examined to ascertain whether parts were acceptable. If so, they were used in analyses for which they were applicable. Where there was a change in observers on a route from one year to the next, the data were examined to determine whether an unexpected population change was apparent. When such differences exceeded those of the prescribed limits, they were attributed to differences in observers, and the data were not used in the current analyses.

Randomization of call-count routes

The original call-count routes (established between 1951 and 1956, and hereafter designated "management routes") were, in many instances, selected in areas of high-density dove populations and were not representative of populations over entire States or management units.

Randomly located routes were first employed in seven southeastern States in 1957 (Foote, Peters, and Finkner, 1958). A study of the random and management route data from these States confirmed earlier assumptions that a revision of the nationwide call-count survey routes should be undertaken if representative dove population indexes were to be obtained. This recommendation prompted the gradual selection and establishment of 912 randomly located call-count routes. In 1971, for the first time, data have been obtained from randomized routes in all 48 conterminous States for 2 or more years.

Both types of routes were run during the year of transition from management to random routes. This procedure permitted a direct comparison of data (Foote, Peters, and Finkner, 1958).

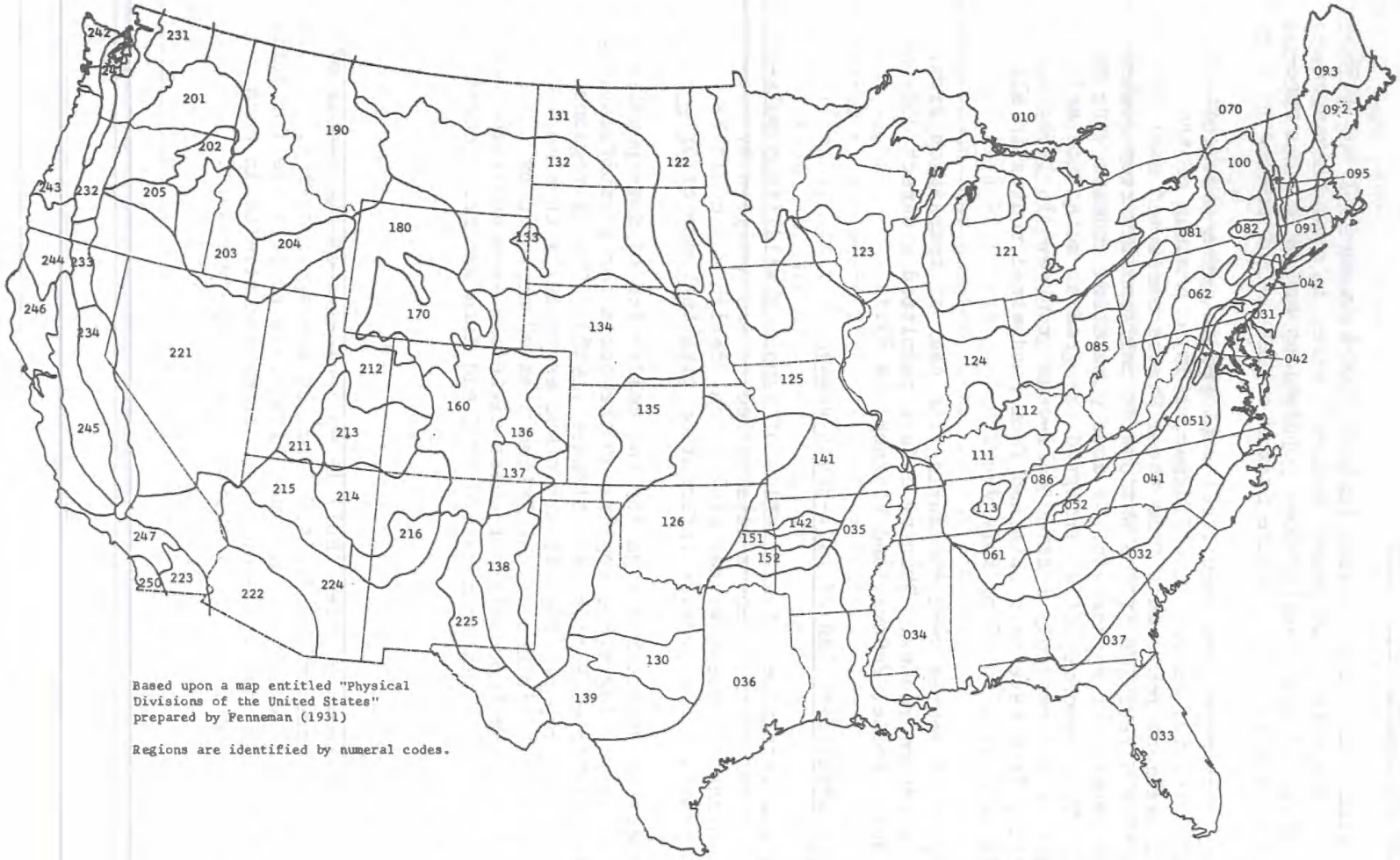
Physiographic stratification of call-count routes

Biologists recognize the limitation of sampling wildlife populations by political units. Census data collected and analyzed by ecological divisions represent better statistical design and could be expected to provide more precise information with the same effort.

An ecological sampling design for the collection of dove population data, using physiographic regions as the basis for stratification, was suggested by Foote, Peters, and Finkner (1958). The 79 regions designated in this report (fig. 1) are based essentially on a map entitled "Physical Divisions of the United States" prepared by Fenneman (1931). The boundaries of these divisions were modified in several instances after examination of field data and more recent ecological studies.

Breeding Density Index

The Breeding Density Index (BDI) is an indicator of the number of doves per unit of area and is derived from the average number of calling doves per route. To obtain as accurate an average as possible for derivation of this index, the call-count data from each stratum in each State are weighted according to the land areas they represent.



Based upon a map entitled "Physical Divisions of the United States" prepared by Penneman (1931)

Regions are identified by numeral codes.

Figure 1.--Physiographic regions used in analysis of mourning dove population data, Revised 1970
See page 5 for strata codes.

GPO 0 - 72 - 2

Physiographic Regions Used in Analysis of Mourning Dove Population Data, Revised 1970
[Modified after Fenneman (1931)]

Description	Stratum Code
Laurentian Upland Division	
Superior Upland Province	010
Atlantic Plain Division	
Coastal Plain Province	
Embayed section	031
Upper Coastal Plain	032
Floridian section	033
East Gulf Coastal Plain	034
Mississippi Alluvial Plain	035
West Gulf Coastal Plain	036
Lower Coastal Plain	037
Appalachian Highlands Division	
Piedmont Province	
Piedmont Uplands	041
Piedmont Lowlands	042
Blue Ridge Province	
Northern section	051
Southern section	052
Valley and Ridge Province	
Tennessee section	061
Middle and Hudson Valley section	062
St. Lawrence Valley Province	
Champlain and Northern section	070
Appalachian Plateaus Province	
Mohawk and Allegheny section	081
Catskill section	082
Kanawha section	085
Cumberland section	086
New England Province	
Southern New England section	091
Northern New England section	092
Mountain section	093
Taconic section	095
Adirondack Province	100

Description	Stratum Code
Interior Plains Division	
Interior Low Plateaus Province	
Highland Rim section	111
Lexington Plain	112
Nashville Basin	113
Central Lowland Province	
Eastern lake section	121
Western lake section	122
Wisconsin Driftless section	123
Till Plains	124
Dissected Till Plains	125
Osage Plains	126
Great Plains Province	
Central Texas section	130
Missouri Plateau, glaciated	131
Missouri Plateau, unglaciated	132
Black Hills	133
High Plains	134
Plains Border	135
Colorado Piedmont	136
Raton section	137
Pecos Valley	138
Edwards Plateau	139
Interior Highlands Division	
Ozark Plateaus Province	
Springfield-Salem plateaus	141
Boston "Mountains"	142
Ouachita Province	
Arkansas Valley	151
Ouachita Mountains	152
Rocky Mountain Division	
Southern Rocky Mountains Province	160
Wyoming Basin Province	170
Middle Rocky Mountains Province	180
Northern Rocky Mountains Province	190

Description	Stratum Code
Intermontane Plateaus Division	
Columbia Plateaus Province	
Walla Walla Plateau	201
Blue Mountain section	202
Payette section	203
Snake River Plain	204
Harney section	205
Colorado Plateaus Province	
High Plateaus of Utah	211
Uinta Basin	212
Canyon Lands	213
Navajo section	214
Grand Canyon section	215
Datil section	216
Basin and Range Province	
Great Basin	221
Sonoran Desert	222
Salton Trough	223
Mexican Highland	224
Sacramento section	225
Pacific Mountain Division	
Cascade Sierra Mountains Province	
Northern Cascade Mountains	231
Middle Cascade Mountains	232
Southern Cascade Mountains	233
Sierra Nevada	234
Pacific Border Province	
Puget Trough	241
Olympic Mountains	242
Oregon Coast Range	243
Klamath Mountains	244
California Trough	245
California Coast Ranges	246
Los Angeles Ranges	247
Lower Californian Province	250

Before 1966, the BDI for each State represented the average number of birds heard calling per route within that State, thus weighting all routes equally. The State averages were then weighted in proportion to the estimated area of dove habitat in each State of a management unit (fig. 2) to provide a Breeding Population Index for each unit (U.S. Bureau of Sport Fisheries and Wildlife, 1957).

Beginning with the 1966 survey, weighting factors based on physiographic regions were used for calculating BDI values in States which had been "randomized" for 2 or more years. The average number of doves heard calling per route in each region within a State was weighted by the percentage of the total land area in the State occupied by that region.

Calculation of management unit BDI's since 1965 has involved two similar procedures as a result of a computer program change. In 1966 and 1967, indexes were determined for each management unit by weighting each State's BDI by the percentage of the total land area occupied by that State in the management unit. When a region within a State was not represented by a BDI, that region assumed the mean of the other regions weighted by land area in that State. Starting in 1968, management unit BDI's were derived directly from State physiographic region BDI's. When a region within a State was not represented by a BDI, that region assumed the weighted management unit mean. Differences between these procedures are evident only when physiographic regions within States are not represented by comparable routes.

Random routes in Maine, New Hampshire, Rhode Island, and Vermont were established after initiation of a special study in 1966 to determine the effects of hunting regulations on dove populations in the Eastern Management Unit. In order to preserve the experimental design of the special study, call-count data from these States have not been included in the Eastern Management Unit means. Consequently, the 1970 and 1971 management unit means were derived from comparable routes run in 44 States.

Determination of short-term population changes, 1970 to 1971

Changes in the size of mourning dove breeding populations within States are indicated by data from 690 comparable routes run in both 1970 and 1971. Weighted average BDI values for each year are presented by States within management units (table 1). Differences in these BDI values, expressed as percent change, determined the magnitude of changes in each State's breeding population. Changes in management unit population levels between 1970 and 1971 are derived from weighted State values (table 3).

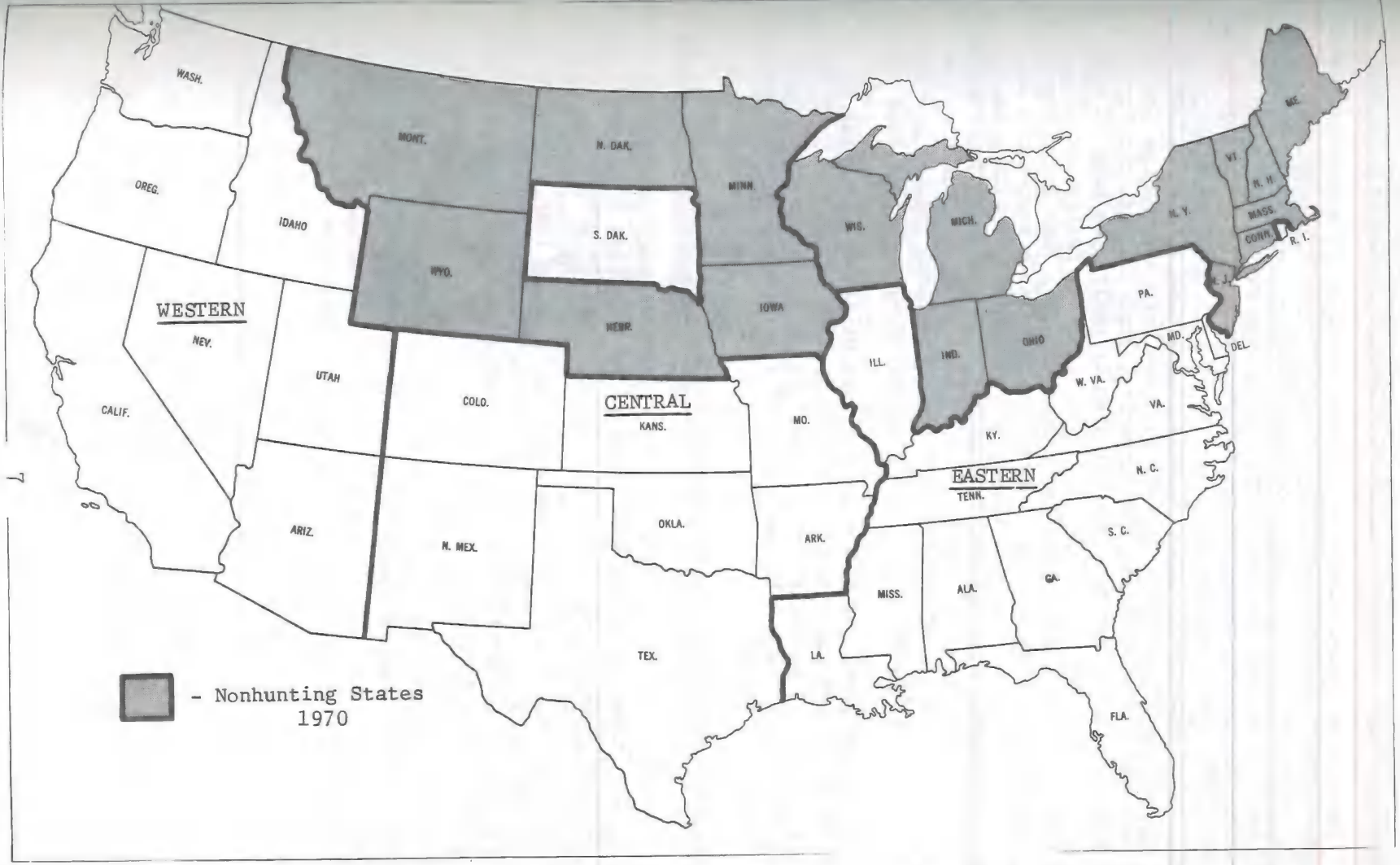


Figure 2.--Mourning dove management units

Determination of long-term population trends by State, 1961 to 1971

Short-term (year-to-year) population changes are based, as indicated, on data from comparable routes only. Since the composition of these comparable routes changes with each 2-year comparison, a Base Year (BY) has been chosen for each State. Long-term trends are shown by applying the percent change in the BDI from year to year to this index. Before 1967, the BY was generally the first year that the State's call-count routes were randomized. In order to provide a more uniform basis for evaluation of long-term trends, 1967 has been selected as the BY for all States except Maine, New Hampshire, Rhode Island, and Vermont. The index for this Base Year was obtained by taking the mean of comparable routes run in both 1966 and 1967 (Ruos and MacDonald, 1968). The four excepted States have been assigned a 1971 Base Year, representing the mean number of doves heard on comparable routes run in both 1970 and 1971. These BY values are thought to provide a meaningful refinement over the previous method. Not only are two "random-route" years averaged to reduce the influence of a possible atypical year, but the choice of a uniform BY for most States reduces possible bias in overweighting a State by the selection of a BY in a peak year.

As in the past, the BDI value for each State for each year is adjusted to the BY value and weighted to provide management unit values. This weighting is based upon differences in land area among States. The land area values and the adjusted BDI values for States and management units are presented in table 3.

Determination of long-term trends by physiographic region, 1965 to 1971

Dove BDI's have been determined for each physiographic region since 1965. The 7-year trend has been obtained by adjusting these values to a base year similar to the procedures described in the preceding section, "Determination of long-term population trends by State, 1961 to 1971." For all regions, 1969 has been selected as the Base Year. In order to reduce the influence of low sampling intensity within regions, the 1969 BYI represents the average of the mean number of doves heard per route in 1968, 1969, and 1970.

The land area values and the BDI's adjusted to the 1969 BY are presented for each physiographic region within management units (table 4).

Determination of changes in factors associated with the survey, 1970 to 1971

Annual changes in the mean survey date, temperature at start of survey, and percent of route listening stations with high disturbance are presented for the first time in this report (table 2). These data have been collected from comparable routes run in both 1970 and 1971 which were accepted for analysis of numbers of doves heard. The analysis of the factors associated with the survey employs the same procedure described for determining annual population changes; all data were weighted by the land area value of each physiographic region within States and management units. Differences in route totals are attributed to the deletion of Automatic Zero Routes and routes containing missing or unacceptable data for one or more factors.

Computer analysis of dove call-count survey data

A significant modification in the computer analysis of the call-count survey data has been accomplished through the programming efforts of Mr. Frederick R. Fiehrer of the Migratory Bird Populations Station. For the first time, nearly all data analyses were performed by computer and printed in final tabular form as presented herein. This program provides properly weighted averages and linear regression data by State, management unit, and physiographic region. It yields the mean difference, the standard error of the mean difference, and level of significance of the change.

Statistical evaluation of data

The Call-Count Survey was designed to detect major year-to-year changes in the breeding population index within each management unit (Foote, 1959). Analysis of the 1970 and 1971 data revealed that observed differences of about 8, 9, and 13 percent between these years within the Eastern, Central, and Western Management Units, respectively, would be statistically significant at the 95-percent level. Although the survey was not designed to detect a change in the BDI between years within States or physiographic regions, data from these areas were also subjected to statistical analysis.

Long-term BDI's, adjusted to a BY for all physiographic regions, States, and management units, were examined to determine whether significant trends were present. Data from each source were analyzed using a linear regression model.

Determination of population distribution

The density distribution of doves has been determined from a study of BDI values adjusted to a BY for each physiographic region and State. These data for 1971 have been assigned to one of five density classes. Changes in the adjusted BDI's greater than 10 percent between 1970 and 1971 within physiographic region and State also were determined.

FINDINGS

From 1970 to 1971, the dove breeding population indexes decreased in each management unit; by 5 percent in the Eastern Unit, 4 percent in the Central Unit, and 2 percent in the Western Unit. All 1971 management unit values are below the preceding 10-year means and are represented by statistically significant downward population trends for the 11-year period, 1961-71. Further, all unit indexes are at their lowest levels for the 18-year period since establishment of the survey on a nationwide basis in 1954.

Status of the United States dove population

1971 population distribution.--The density distribution of mourning dove populations in the United States is presented by State (fig. 3) and by physiographic region (fig. 4). The most extensive area of high dove density was in the middle States, especially in the eastern Great Plains, Central Lowlands, and in the lower Mississippi River plain. High densities were also observed in the Upper Coastal Plain of Georgia and the Carolinas. A mean of 40 or more doves were heard per route in the States of Indiana, Kansas, and Nebraska (table 3).

1970 to 1971 population changes.--The United States BDI declined 3.7 percent from 18.7 doves heard per route in 1970 to 18.0 doves heard per route in 1971 (table 3). Changes greater than 10 percent in the BDI are illustrated by State (fig. 5) and by physiographic region (fig. 6). The 1971 indexes were generally lower than in 1970 in the southern two-thirds of the United States, and generally higher in the norther third. From 1970 to 1971, the combined hunting States index declined 5.7 percent, whereas the combined nonhunting States index increased 2.3 percent.

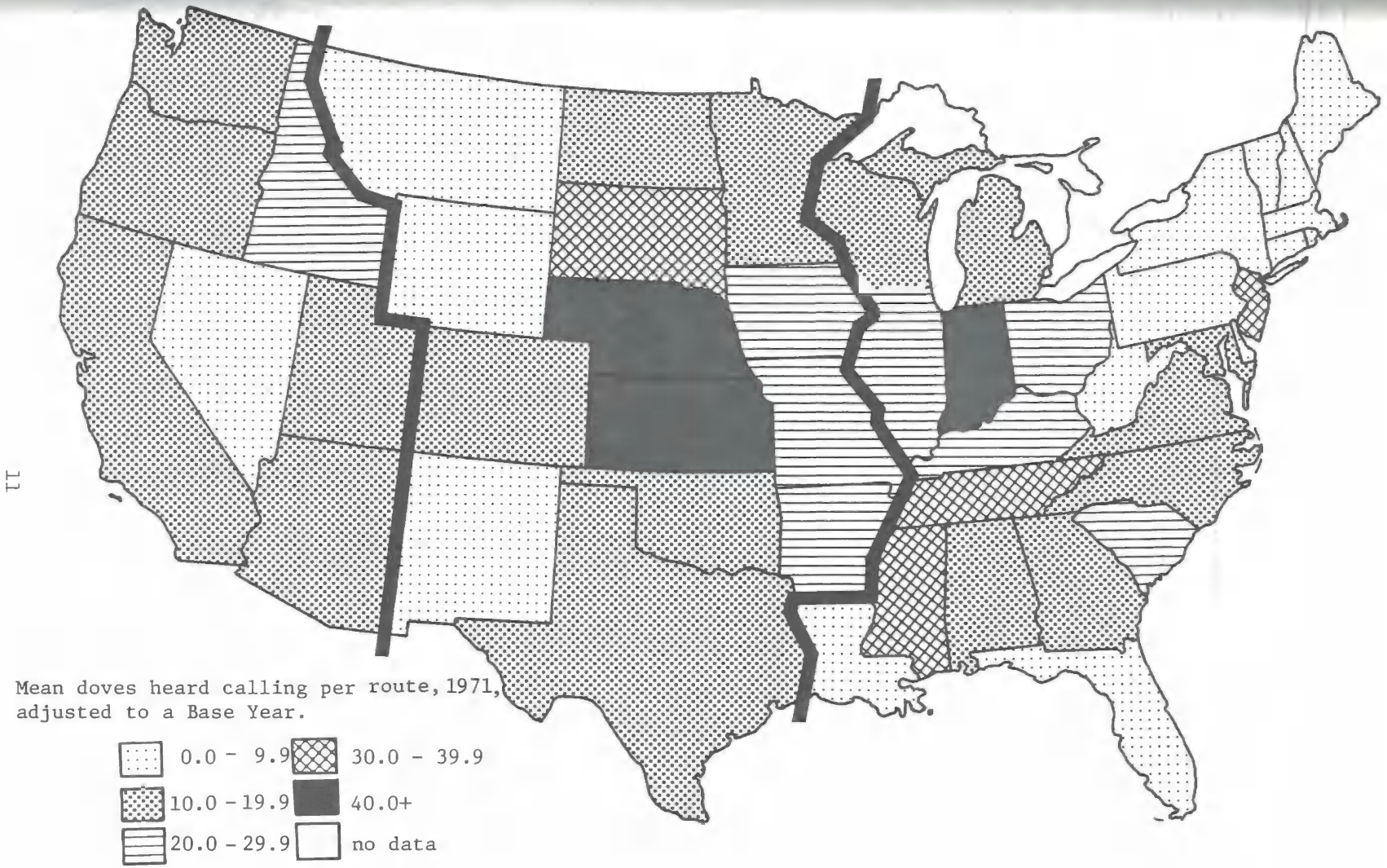


Figure 3.--Relative densities of breeding mourning doves by State, 1971

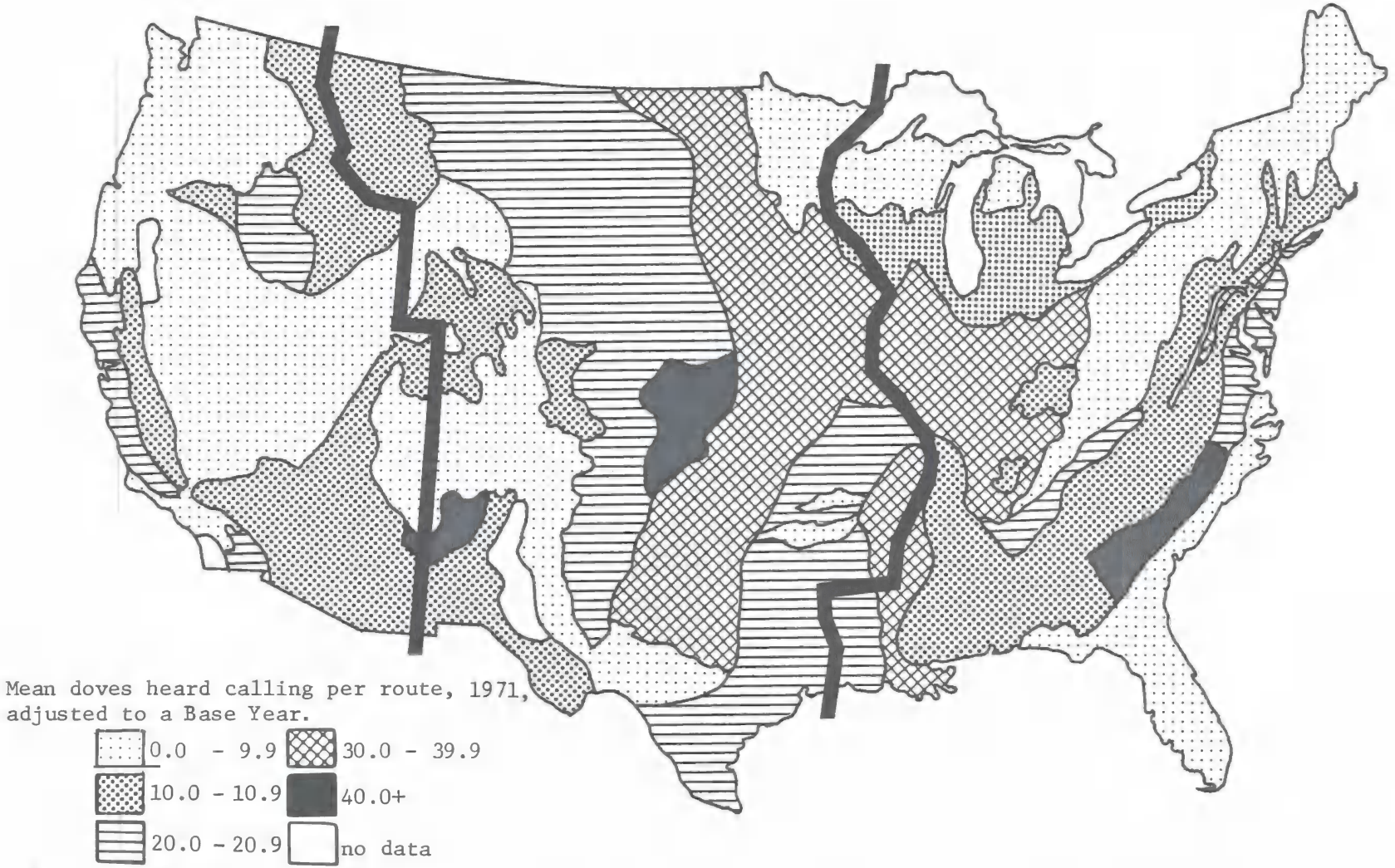


Figure 4.--Relative densities of breeding mourning doves by physiographic region, 1971

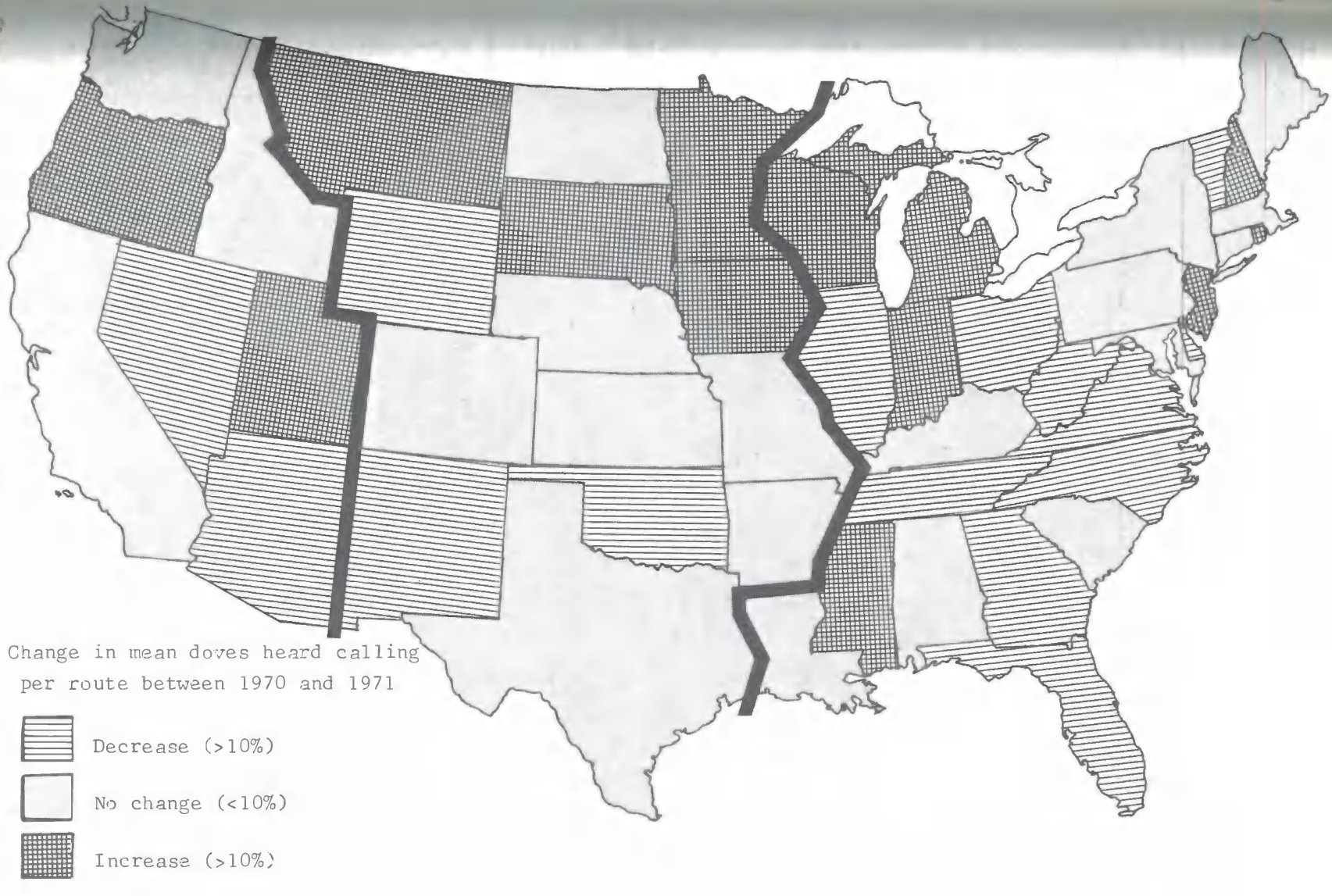


Figure 5.--Changes in densities of breeding mourning doves by State between 1970 and 1971

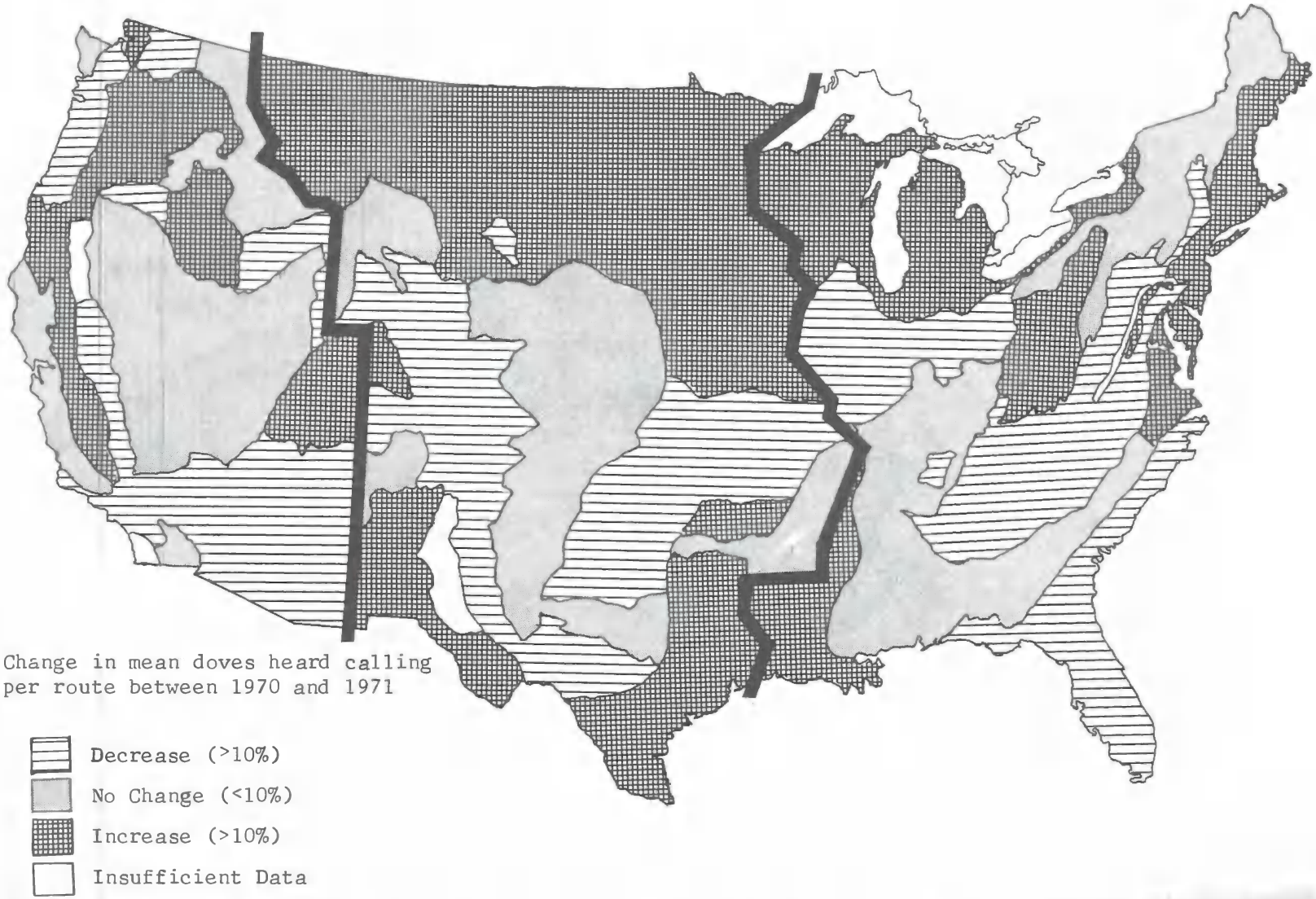


Figure 6.--Changes in densities of breeding mourning doves by physiographic region between 1970 and 1971

Analyses of several factors associated with these surveys show that the mean temperature at the start of the 1971 survey was significantly colder than in 1970: United States, - 3.6 degrees Fahrenheit; hunting States, - 3.2 degrees; and nonhunting States, - 4.8 degrees (table 2). In 1971, the surveys were run an average of one day earlier than in 1970. The percentage of survey stops with audible disturbance great enough to seriously affect the counting of calling doves increased from 7.9 percent in 1970 to 8.7 percent in 1971.

1961 to 1971 long-term population trends.--The 1971 BDI's adjusted to a Base Year for the United States and the combined hunting States are the lowest observed for the 11-year period, 1961-1971 (table 3). This represents the fifth successive year without an increase in the population index. In contrast, the adjusted BDI for nonhunting States increased for the first time in 1971 following 4 successive years of decline. The indexes for these areas in 1971 are well below the preceding 10-year means: United States, -14.4 percent; hunting States, -14.4 percent; and nonhunting States, -14.7 percent.

Adjusted BDI's plotted in figures 7 and 8 reflect the general downward trend in population indexes since 1961. Linear regression analyses of these data (table 3) are shown in figure 9. The indexes declined at an average annual rate of 2.5 in the United States, 2.3 in the hunting States, and 2.9 percent in the nonhunting States. This study reveals a significant overall decline in nationwide dove breeding populations between 1961 and 1971.

Population trends as determined from linear regression analyses are shown by State (table 3, fig. 10) and by physiographic region (table 4, fig. 11). From 1961 to 1971, statistically significant downward trends exist in much of the northern Great Plains and the Pacific border and southern border States. Trends are significantly upward in several scattered mid-latitude States.

Status of the Eastern Management Unit population

1971 population distribution.--Highest dove population densities in the Eastern Unit were in the west-central section, especially in the Central Lowlands, and in portions of the Upper Coastal Plain and Mississippi Alluvial Plain. Densities were generally low in the Appalachian Highlands, northern uplands, and the lower Atlantic Coastal Plain (fig. 4). States represented by a mean of 30 or more doves heard per route included Indiana, New Jersey, Mississippi, and Tennessee (table 3, fig. 3).

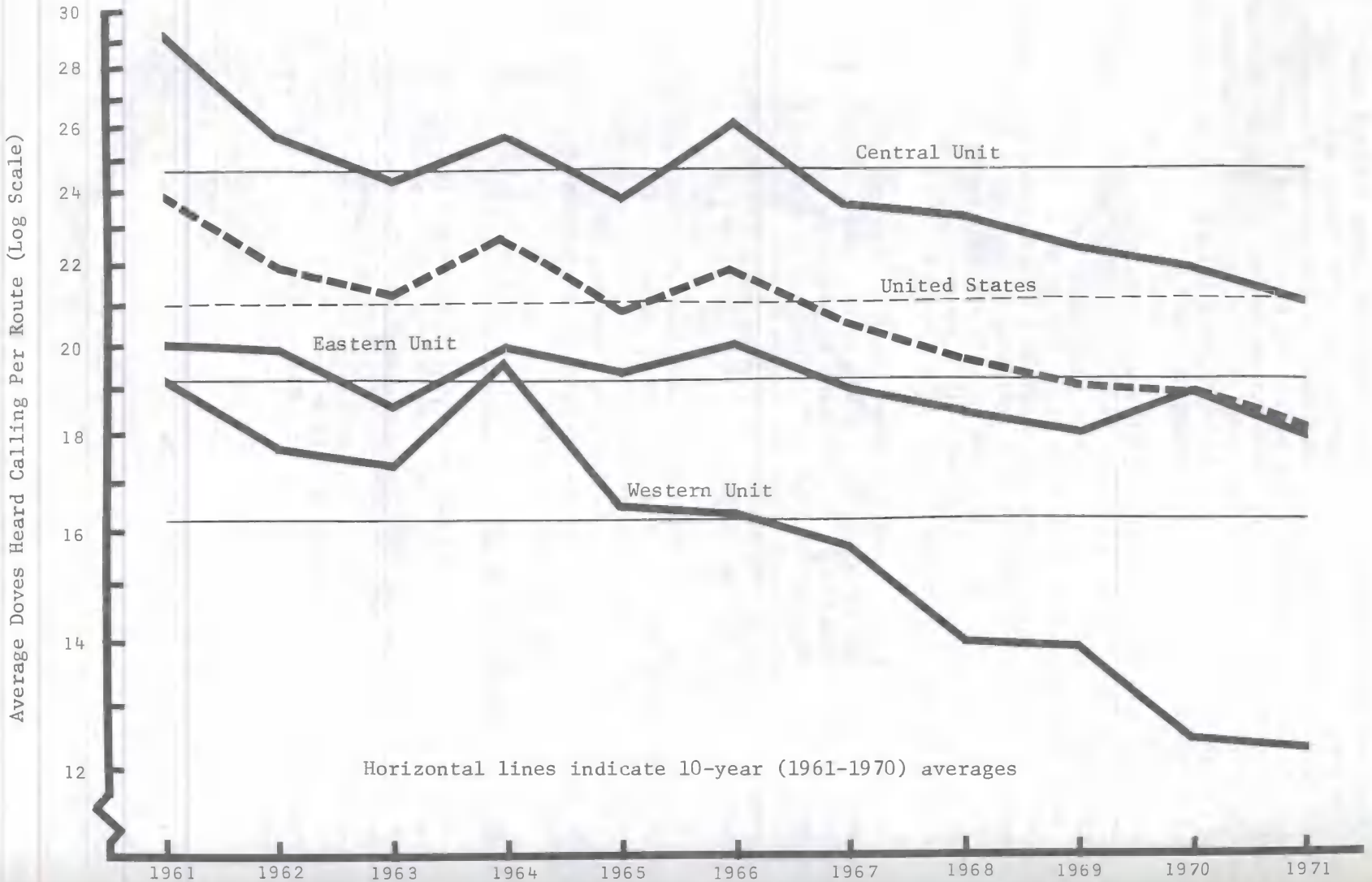


Figure 7.--Breeding mourning dove population indexes by management unit, 1961-1971

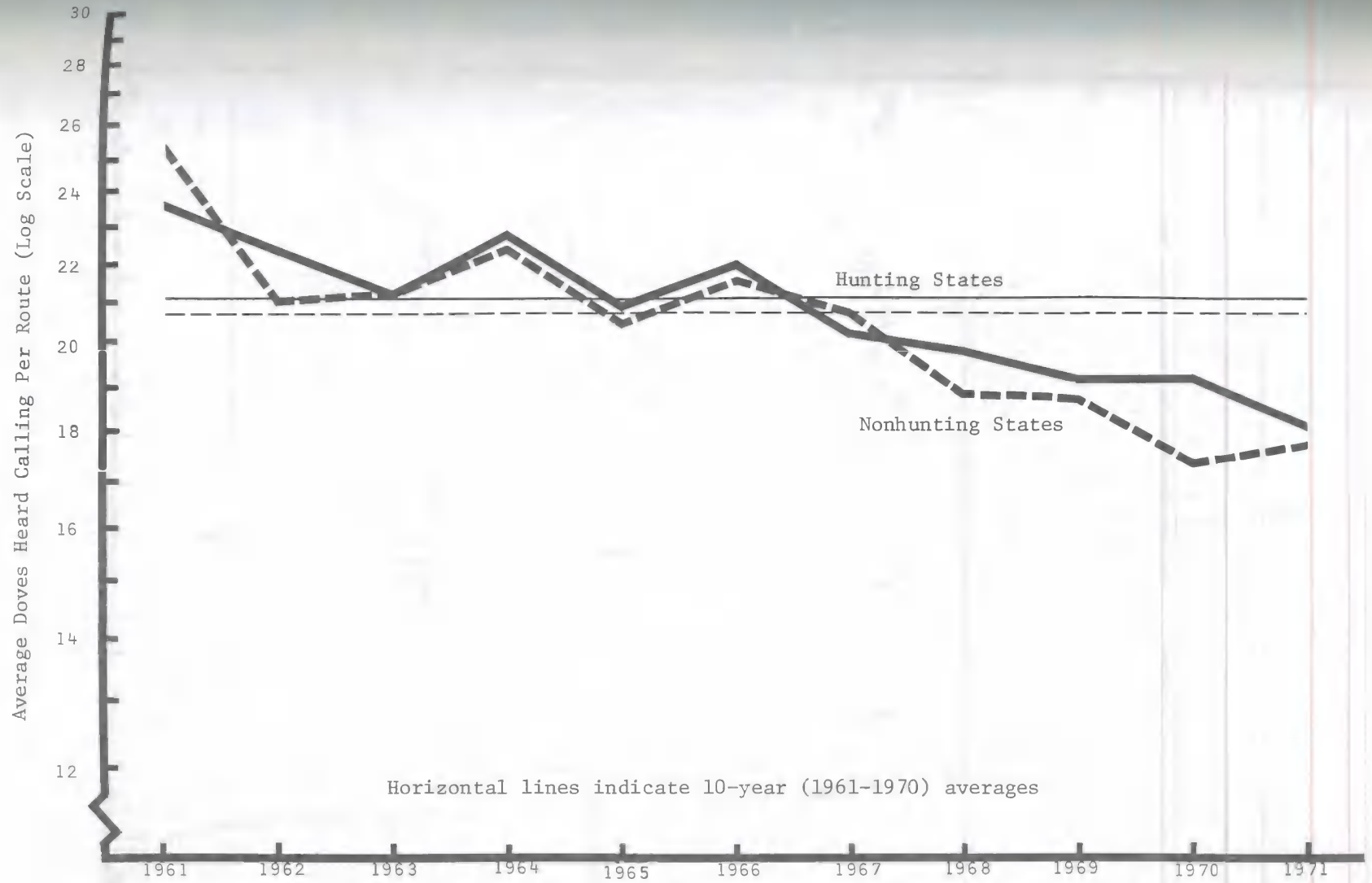


Figure 8.--Breeding mourning dove population indexes for the United States hunting and nonhunting States, 1961-1971

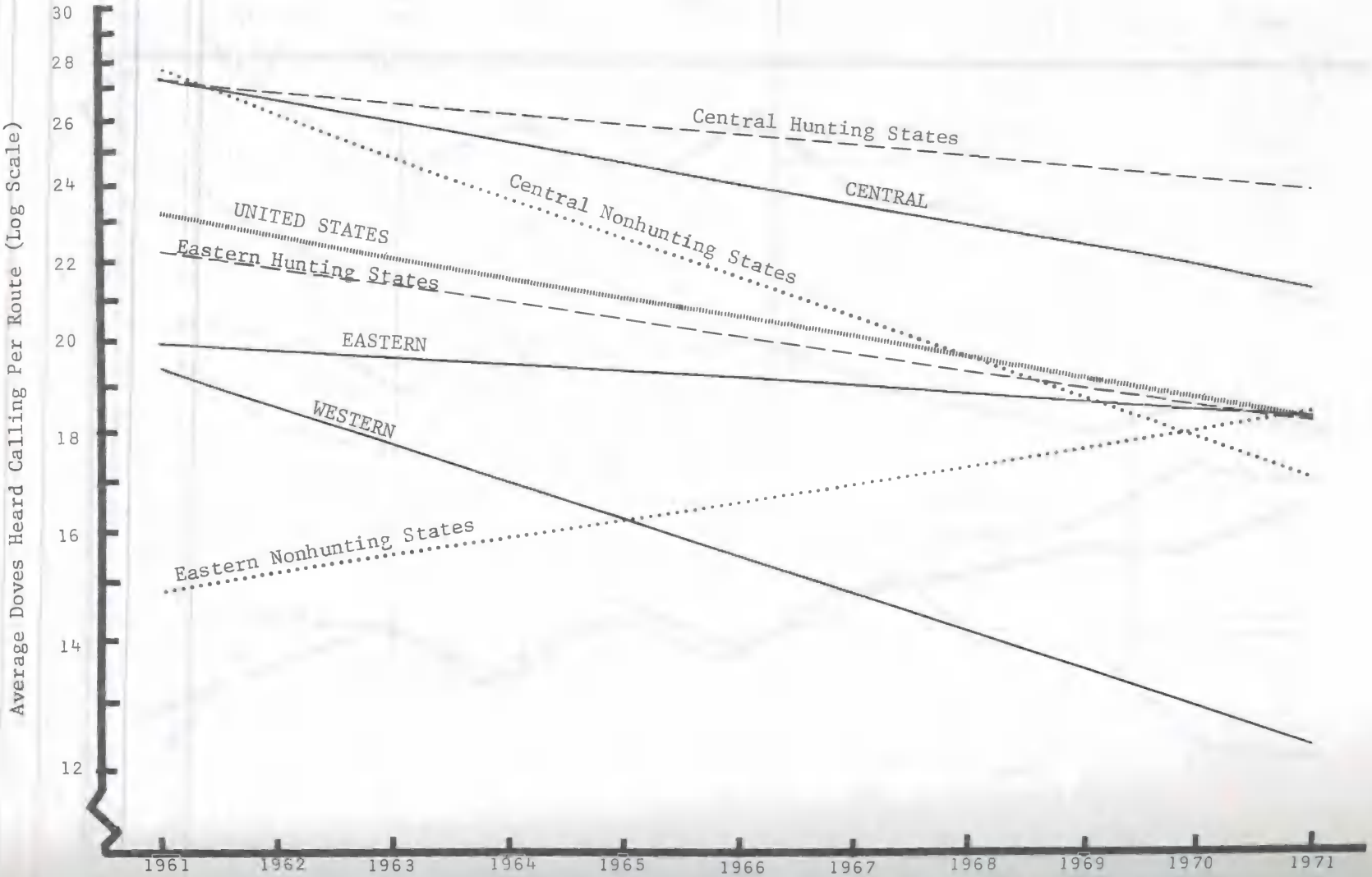


Figure 9.--Linear regression lines of mourning dove call-count data, 1961-1971

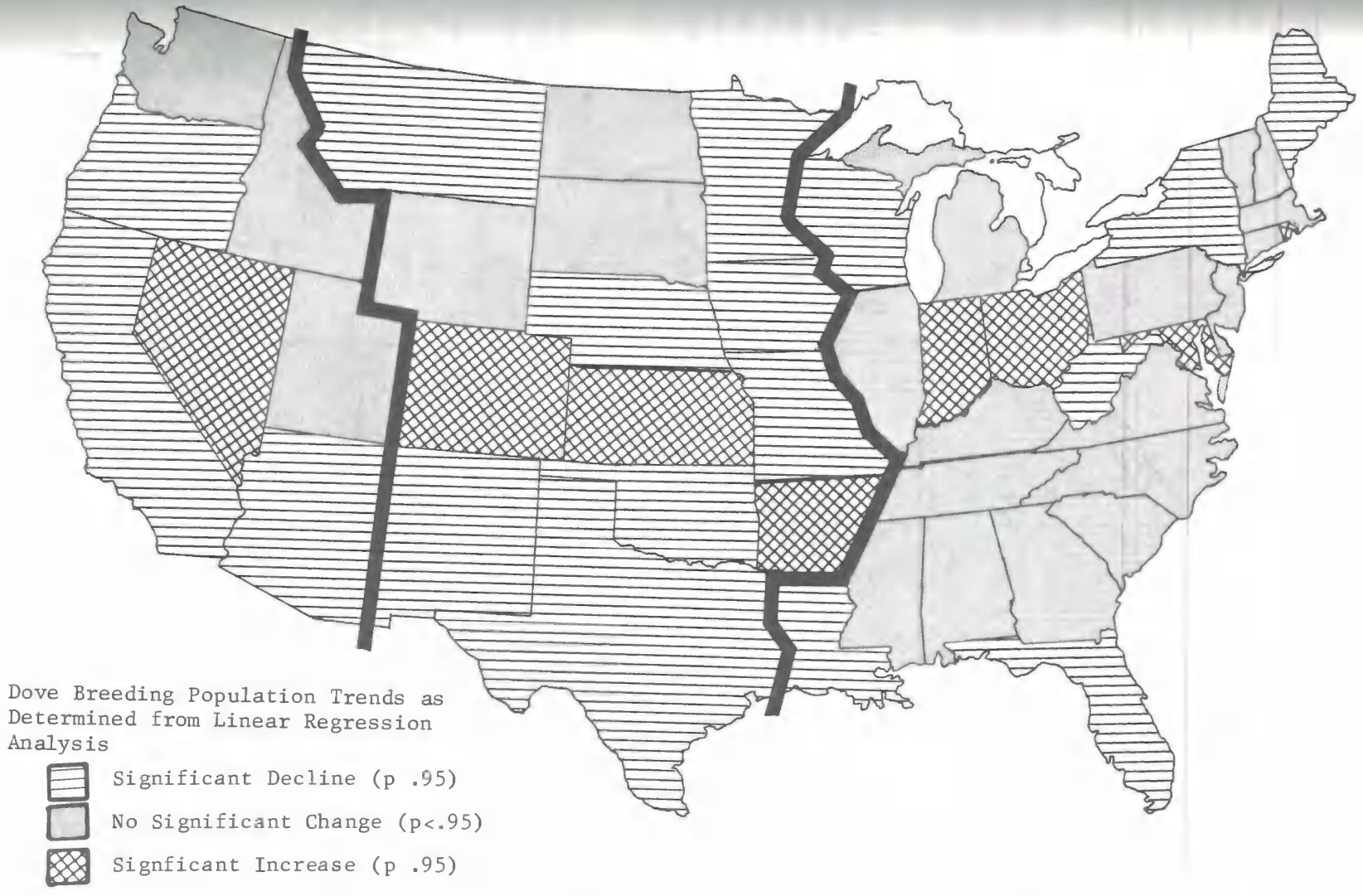

Dove Breeding Population Trends as Determined from Linear Regression Analysis
Significant Decline (p .95)
No Significant Change (p<.95)
Signficant Increase (p .95)

Figure 10.--Trends in mourning dove breeding populations by State, 1961 to 1971

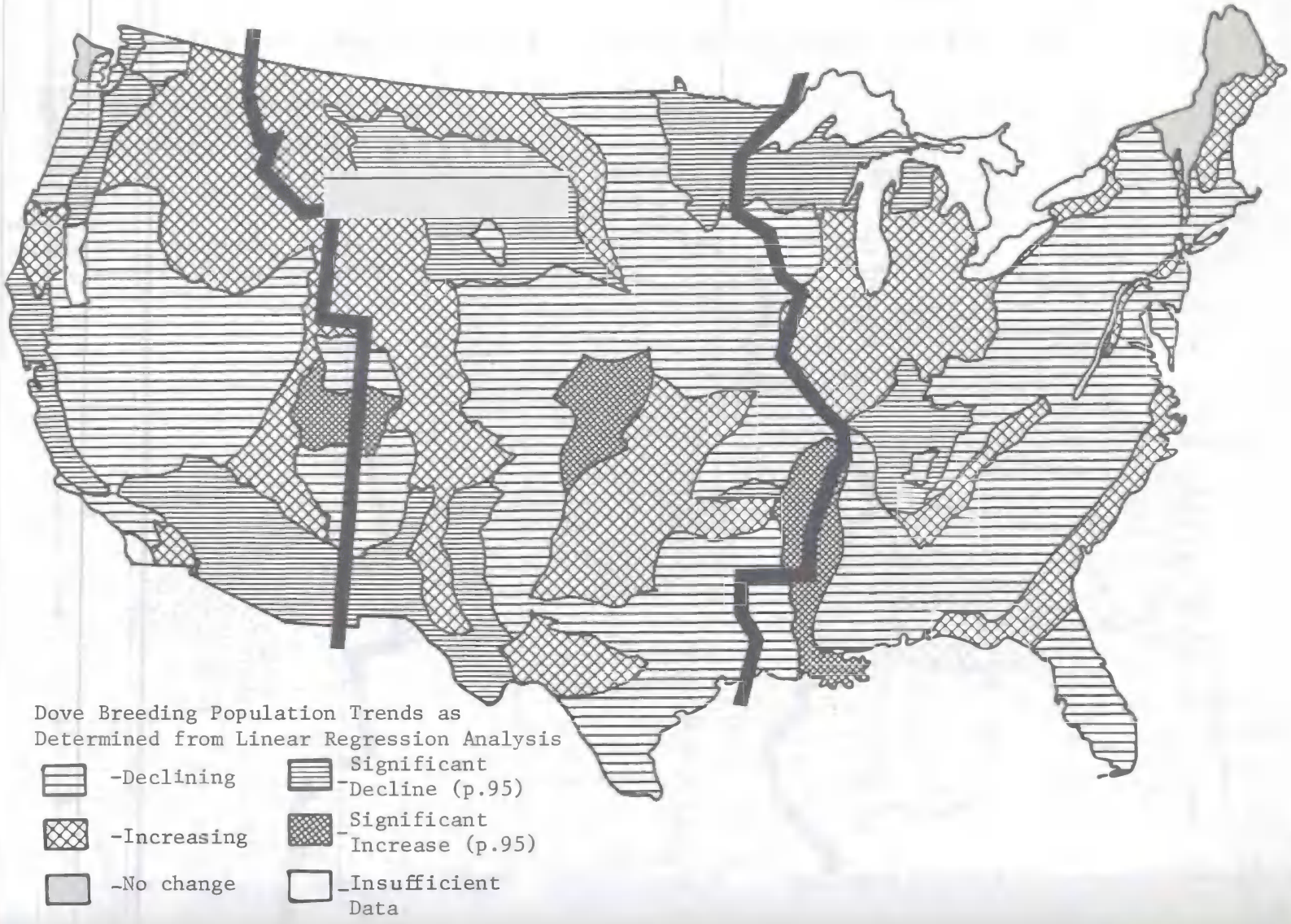


Figure 11.--Trends in mourning dove breeding populations by physiographic region, 1965 to 1971

1970 to 1971 population changes.--The Eastern Unit BDI declined 4.8 percent from 18.8 doves heard per route in 1970 to 17.9 doves heard per route in 1971 (table 3). The 1971 population levels were generally higher than in 1970 in areas bordering the Great Lakes, north Atlantic Coast, and southern Mississippi River. Population indexes were lower in the central and southeastern sections of the Unit (figs. 5, 6). From 1970 to 1971, the combined hunting States index decreased 10.9 percent and the combined nonhunting States index increased 11.4 percent (table 3).

Mean temperatures at the start of the survey were significantly colder in 1971 than in 1970 by 4.2 degrees Fahrenheit for the Eastern Unit, 3.2 degrees for the hunting States, and 6.6 degrees for the nonhunting States (table 2). No appreciable change occurred between mean survey dates or percentage of high disturbance recorded per route in 1970 and 1971.

1961 to 1971 long-term population trends.--In 1971, the Eastern Unit BDI declined to its lowest level for the 11-year period (table 3, fig. 7). The indexes have declined during 4 of the last 5 survey years. Populations for the combined hunting States were also at their lowest levels in 1971 following 5 years of decline during the last 6 years (table 3, fig. 12). In contrast, the combined nonhunting States index has increased for the third successive year to its highest level in 11 years (table 3, fig. 12). The adjusted Unit BDI for 1971 is 6.7 percent below the preceding 10-year mean (fig. 7). The combined hunting States index is 16.0 percent below the 1961 average, and the index for the combined nonhunting States 20.4 percent above this mean (fig. 12).

Regression analysis shows a significant downward trend in the Eastern Unit population between 1961 and 1971; the mean rate of decline was determined to be 1.0 percent per year (table 3, fig. 9). During the same period, the combined hunting States declined significantly at an average annual rate of 2.0 percent, whereas the nonhunting States increased significantly at 2.1 percent per year. The nonhunting States in the Eastern Unit represent the only grouping of States having an upward population trend. Significant upward population trends occurred in Indiana, Maryland, Ohio, and Rhode Island; downward trends were determined for Florida, Louisiana, Maine, New York, Wisconsin, and West Virginia (table 3, fig. 10).

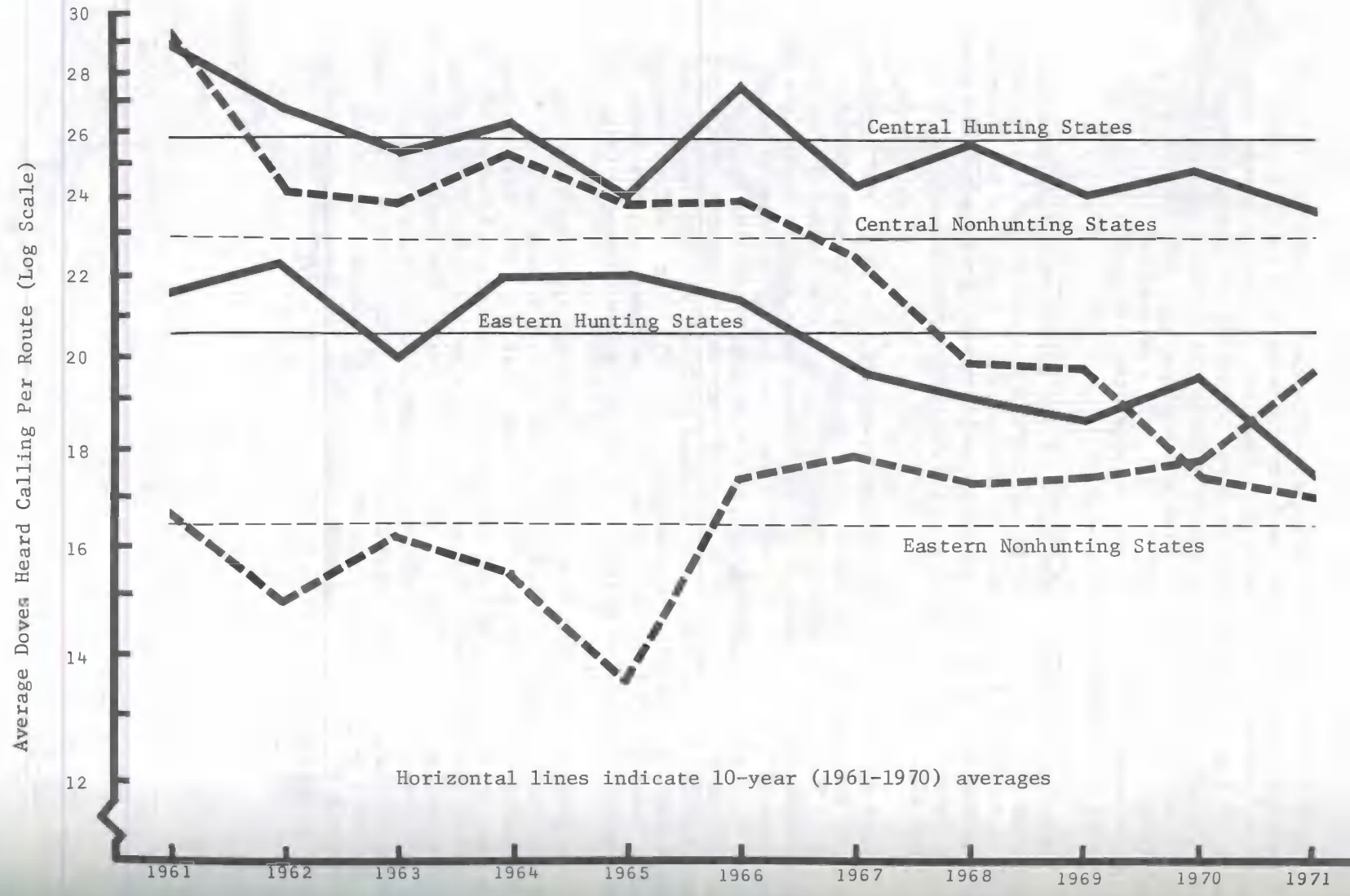


Figure 12--Breeding mourning dove population indexes for the Eastern and Central Management Unit hunting and nonhunting States, 1961-1971

Status of the Central Management Unit population

1971 population distribution.--Highest population densities in the Central Management Unit were distributed in the eastern and central sections, especially in the Great Plains and Central Lowlands. Low densities were rather uniformly distributed in the western and southwestern sections of the Unit (fig. 4). States represented by a mean of 30 or more doves heard per route included Kansas, Nebraska, and South Dakota (table 3, fig. 3). Kansas had the highest mean BDI of any State, with an adjusted mean of 58.9 doves heard calling per route.

1970 to 1971 population changes.--The Central Unit BDI declined 4.1 percent from 21.9 doves heard per route in 1970 to 21.0 doves heard per route in 1971 (table 3). The 1971 population levels were substantially higher than in 1970 over much of the northern and northeastern sections of the Unit, and generally lower throughout the central and southcentral areas (figs. 5, 6). From 1970 to 1971, the combined hunting States index decreased 5.2 percent, and the combined nonhunting States index declined 1.8 percent (table 3).

In 1971, the mean temperature at the start of the surveys was significantly colder than in 1970: Central Unit, - 3.3 degrees Fahrenheit; hunting States, - 3.0 degrees; and nonhunting States, - 3.9 degrees (table 2). The mean survey date in 1971 was one day earlier than in 1970. A slightly greater proportion of the 1971 routes were run under conditions of high disturbance.

1961 to 1971 long-term population trends.--In 1971, the Central Unit BDI declined for the fifth successive year to the lowest level for the 11-year period (table 3, fig. 7). The population index also declined for the fifth successive year in the combined nonhunting States, while the population level for the hunting States has declined three times during the last 5 years. Both the combined hunting States and the combined nonhunting States indexes are at their lowest levels for the period (table 3, fig. 12). Current population levels are well below the preceding 10-year means: Central Unit, -14.9 percent; combined hunting States, -8.5 percent; and combined nonhunting States, -26.5 percent (figs. 7, 12).

Regression analysis shows that a significant downward trend in the dove population index occurred from 1961 to 1971 in the Central Unit. Similar downward trends were observed for the combined hunting States and the combined nonhunting States (table 3, fig. 9). The annual rates of decline in the adjusted BDI's were determined as follows: Central Unit, -2.5 percent; combined hunting States, -1.3 percent; and combined nonhunting, -4.7 percent. Significant upward population trends occurred in Arkansas, Colorado, and Nebraska; downward trends were evident in all but three of the remaining States (table 3, fig. 10).

Status of the Western Management Unit population

1971 population distribution.--Highest population densities in the Western Management Unit were essentially restricted to coastal California and sections of the Columbia Plateau. Lowest densities were distributed through much of the Great Basin and the northwestern part of the Unit (fig. 4). Idaho had the highest adjusted BDI of any Western Unit State in 1971, with 23.2 doves heard calling per route (table 3, fig. 3).

1970 to 1971 population changes.--The Western Unit BDI declined 1.6 percent from 12.4 doves heard per route in 1970 to 12.2 doves heard per route in 1971 (table 3). Populations increased in several regions, especially in the States of Oregon and Utah (figs. 5, 6). Substantial population declines were evident in much of Arizona and Nevada. All States within the Western Unit hunt mourning doves.

From 1970 to 1971, the mean temperature at the start of the surveys declined by 3.4 degrees Fahrenheit for the Western Unit (table 2). The average survey was run one day later in 1971 than in 1970. The 1971 survey routes were run under conditions of slightly greater high disturbance.

1961 to 1971 population trends.--The 1971 BDI for the Western Unit is the lowest observed for the 11-year period (table 3). This is the seventh successive year without an increase in the population index. The 1971 index is 24.8 percent below the preceding 10-year mean (fig. 7), and represents the greatest departure of any management unit.

Regression analysis shows a significant downward trend in the dove population index from 1961 to 1971. The BDI declined at an average annual rate of 4.4 percent along the calculated regression line--the greatest rate of decline of any management unit (table 3, fig. 9). Between 1961 and 1971, only the State of Nevada had a significant upward population trend. Significant downward trends occurred in Arizona, California, and Oregon during the same period (table 3, fig. 10).

Statistical significance of data

1970 to 1971 population changes.--No significant ($p<0.05$) changes occurred in the BDI's of any management unit (table 1). Within the Eastern Management Unit, the BDI for the combined hunting States declined between 1970 and 1971 ($p<0.01$). None of the indexes for the other combined hunting States or combined nonhunting States were significantly different between these years. Although not designed to detect population changes within States, the survey showed significant increases in Indiana, Michigan, Wisconsin, and Utah. Significant decreases occurred in Florida and Arizona (table 1).

The analyses of several factors associated with the call-count survey revealed that, in each management unit, the 1971 survey was run under conditions that were significantly colder ($p<0.01$) than in 1970 (table 2). No significant change in date occurred within management unit between 1970 and 1971. Survey cooperators encountered significantly ($p<0.05$) more high disturbance on routes run in the Western Unit in 1971. No significant change in the frequency of high disturbance was found between routes run in 1970 and 1971 in either the Eastern or the Central Management Units.

A study of the data from physiographic regions obtained from 1970 and 1971 within each management unit was also made. As identified in figure 1, significant ($p<0.05$) increases occurred in the Superior Uplands (Region 010) of the Eastern Management Unit, and in the West Coastal Plain (036) of the Central Management Unit. Significant decreases occurred in the Floridian Coastal Plain (033), Colorado Piedmont (136), and Sonoran-Mojave Desert (222).

1961 to 1971 long-term population trends.--Statistical analyses of the 1961-71 data revealed that significant ($p<0.05$) downward trends in BDI's occurred in all management and submanagement units, except for the combined nonhunting States of the Eastern Unit (table 3). A significant upward population trend occurred in the Eastern nonhunting States.

This report presents the results of long-term BDI data analyzed by State and physiographic region (tables 3 and 4). Eight States were determined to have significant ($p<0.05$) upward population trends between 1961 and 1971, while 17 States had downward trends in population (fig. 10). From 1965 to 1971, three of 67 physiographic regions had significant upward population trends, whereas nine regions had downward trends in population (fig. 11).

ACKNOWLEDGMENTS

This report would not be possible without the cooperation of the State conservation departments and the many individuals who assisted in collecting data. Preparation of this report represents a combined effort; special thanks are extended to Mr. Frederick R. Fiehrer for computer programming assistance, Mrs. Kathy Judy for preparing several of the figures, and Mrs. Katheryn Munson for typing the final manuscript.

REFERENCES

Fenneman, Nevin M.
1931. Physiography of western United States. McGraw-Hill Book Company, New York. 534 p.

_____
1938. Physiography of eastern United States. McGraw-Hill Book Company, New York. 714 p.

Foote, Leonard E.
1959. A sampling design for mourning dove call counts. A report to the Bureau of Sport Fisheries and Wildlife, U.S. Fish and Wildlife Service, from The Wildlife Management Institute. (Unpublished report.) December. 47 p. + 24 tables + appendix.

_____, and Harold S. Peters.
1952. Introduction, p. 1-3 in Investigations of methods of appraising the abundance of mourning doves. U.S. Fish and Wildlife Service, Special Scientific Report--Wildlife No. 17.

_____, Harold S. Peters, and Alva L. Finkner.
1958. Design tests for mourning dove call-count sampling in seven southeastern States. Journal of Wildlife Management, vol. 22, No. 4, p. 402-403.

Frankel, Arthur I., and Thomas S. Baskett.
1961. The effect of pairing on cooing of penned mourning doves. Journal of Wildlife Management, vol. 25, No. 4, p. 372-384.

Irby, Harold D.
1964. The relationship of calling behavior to mourning dove populations and production in southern Arizona. Unpublished Ph.D. dissertation, University of Arizona. 100 p.

Jackson, Gary L., and Thomas S. Baskett.
1964. Perch-cooing and other aspects of breeding behavior of mourning doves. Journal of Wildlife Management, vol. 28, No. 2, p. 293-307.

Ruos, James L.
1971. Mourning dove status report, 1970. U.S. Bureau of Sport Fisheries and Wildlife, Special Scientific Report--Wildlife No. 141. 36 p.

_____, and Duncan MacDonald.
1968 Mourning dove status report, 1967. U.S. Bureau of Sport Fisheries and Wildlife, Special Scientific Report--Wildlife No. 121. 23 p.

U.S. Bureau of Sport Fisheries and Wildlife.
1957. Mourning Dove Newsletter, No. 12. 30 p.

Wight, Howard M.
1964. Matedness in the mourning dove and its effect on the nationwide dove-call census. Trans. 29th North American Wildlife and Resources Conference, p. 270-281.

TABLE 1.--CHANGES IN MOURNING DOVE BREEDING DENSITY INDEXES ON 20-STOP CALL-COUNT SURVEY ROUTES, 1970-71

EASTERN MANAGEMENT UNIT

STATES	COMPARABLE ROUTES	MEAN NUMBER OF DOVES HEARD/ROUTE 1/ 1970	1971	PERCENT CHANGE 2/
		HUNTING STATES		
ALA.	27	18.7	17.0	-9.0
DEL.	1	15.0	5.0	-66.7
FLA.	21	11.1	7.8	-29.5 **
GA.	20	22.6	15.0	-33.5
ILL.	18	27.8	22.4	-19.6
KY.	19	26.0	25.7	-1.1
LA.	19	6.5	6.6	1.6
MD.	7	19.4	18.3	-5.5
MISS.	18	23.7	26.6	12.2
N.C.	19	27.6	18.3	-33.6 *
PA.	16	7.9	7.5	-5.0
R.I. 3/	2	4.5	13.0	188.9
S.C.	19	27.7	28.7	3.6
TENN.	18	22.5	20.2	-10.4
VA.	7	28.0	24.2	-13.5
W. VA.	8	5.5	4.7	-13.3
SUBTOTAL	236	19.5	17.0	-12.8 ***
		NONHUNTING STATES		
CONN.	2	5.5	6.0	9.1
IND.	13	31.0	39.2	26.5 ***
MAINE 3/	4	0.0	0.0	0.0
MASS.	2	8.0	8.7	8.8
MICH.	18	9.2	13.0	40.7 ***
N.H. 3/	3	1.2	4.4	260.0
N.J.	2	20.9	23.2	10.9
N.Y.	11	12.2	11.0	-9.6
OHIO	7	47.9	37.0	-22.8
VT. 3/	3	0.4	0.0	-100.0
WIS.	15	9.9	13.5	35.6 **
SUBTOTAL	70	17.9	19.5	8.9
TOTAL	306	19.0	17.7	-6.8

TABLE 1.--CHANGES IN MOURNING DOVE BREEDING DENSITY INDEXES ON 20-STOP CALL-COUNT SURVEY ROUTES, 1970-71--CONTINUED

CENTRAL MANAGEMENT UNIT

STATES	COMPARABLE ROUTES	MEAN NUMBER OF DOVES HEARD/ROUTE 1/ 1970	1971	PERCENT CHANGE 2/
		HUNTING STATES		
ARK.	14	21.9	23.3	6.2
COLO.	11	18.2	16.6	-8.5
KANS.	18	52.1	50.6	-3.0
MO.	14	30.0	28.1	-6.2
N. MEX.	13	10.7	9.4	-12.0
OKLA.	2	7.3	4.0	-44.9
S. DAK.	11	19.3	23.1	19.6
TEX.	41	20.4	20.3	-0.5
SUBTOTAL	124	22.0	21.5	-2.2
		NONHUNTING STATES		
IOWA	13	24.1	29.2	21.2
MINN.	12	10.6	15.9	50.0 *
MONT.	9	10.2	13.4	30.8
N. DAK.	20	21.1	21.5	2.1
NEBR.	21	40.0	38.8	-2.9
WYO.	6	6.8	3.3	-51.1
SUBTOTAL	81	17.5	19.2	9.9
TOTAL	205	20.3	20.6	1.8

TABLE 1.--CHANGES IN MOURNING DOVE BREEDING DENSITY INDEXES ON 20-STOP CALL-COUNT SURVEY ROUTES, 1970-71--CONTINUED

WESTERN MANAGEMENT UNIT

STATES	COMPARABLE ROUTES	MEAN NUMBER OF DOVES HEARD/ROUTE 1/ 1970	1971	PERCENT CHANGE 2/
		HUNTING STATES		
ARIZ.	42	22.9	16.4	-28.4 ***
CALIF.	48	14.8	15.1	2.1
IDAHO	13	15.1	15.7	3.9
NEV.	16	6.0	3.4	-42.7
OREG.	18	6.7	7.7	15.1
UTAH	14	10.5	18.5	76.3 **
WASH.	16	7.7	7.7	0.6
TOTAL	167	12.6	12.4	-1.7

UNITED STATES SUMMARY

STATES	COMPARABLE ROUTES	MEAN NUMBER OF DOVES HEARD/ROUTE 1/ 1970	1971	PERCENT CHANGE 2/
HUNT	527	18.2	17.2	-5.2
NONHUNT	151	17.6	19.3	9.6
TOTAL	678	18.0	17.8	-1.4

1/ INDEXES OBTAINED FROM COMPARABLE, RANDOMIZED ROUTE DATA ADJUSTED FOR VARIATION IN THE LAND AREA OF EACH PHYSIOGRAPHIC REGION.

2/ CALCULATIONS PERFORMED USING THREE SIGNIFICANT POSITIONS. THE NUMBER OF ASTERISKS REPRESENT THE STATISTICAL SIGNIFICANCE LEVEL: * 90 PERCENT; ** 95 PERCENT; *** 99 PERCENT.

3/ STATE DATA NOT REPRESENTED IN MANAGEMENT UNIT MEANS.

EASTERN MANAGEMENT UNIT

STATES	DATE OF SURVEY 1/ ROUTES	1970	1971	CHANGE		TEMPERATURE AT START 1/ ROUTES	1970	1971	CHANGE		HIGH DISTURBANCE (%) 1,2/ ROUTES	1970	1971	CHANGE	
HUNTING STATES															
ALA.	27	MAY 27	MAY 25	-2		27	61.3	57.5	-3.8	***	27	15.5	12.5	-3.0	
DEL.	1	JUNE 9	JUNE 6	-3		1	62.0	70.0	8.0		1	35.0	25.0	-10.0	
FLA.	18	MAY 27	MAY 29	2		18	67.4	66.2	-1.2		17	6.1	9.9	3.8	
GA.	20	MAY 25	MAY 25	0		20	63.3	64.4	1.1		19	13.8	7.8	-6.1	
ILL.	18	MAY 26	MAY 27	1		18	59.4	50.3	-9.1	***	14	12.2	9.7	-2.5	
KY.	19	MAY 29	MAY 27	-2	**	19	62.0	54.6	-7.4	***	16	5.0	6.0	0.9	
LA.	18	MAY 29	MAY 25	-4		18	68.5	65.5	-3.1		18	15.9	11.0	-4.8	
MD.	7	JUNE 1	MAY 30	-2		7	57.0	58.7	1.7		7	7.9	6.7	-1.2	
MISS.	18	MAY 24	MAY 24	0		18	64.0	61.0	-2.9	*	17	8.3	7.8	-0.6	
N.C.	18	MAY 23	MAY 26	3		18	56.0	62.0	6.0		15	7.6	10.2	2.6	*
PA.	15	MAY 30	JUNE 2	3		15	55.7	53.6	-2.1		15	18.0	12.9	-5.1	
R.I. 3/	2	MAY 28	MAY 24	-4		2	48.0	52.5	4.5		2	7.5	0.0	-7.5	
S.C.	19	MAY 25	MAY 26	1		19	63.1	61.3	-1.8		19	10.0	15.0	4.9	
TENN.	18	MAY 22	MAY 24	2		18	60.4	56.3	-4.1		14	15.8	16.6	0.8	
VA.	7	MAY 25	MAY 30	5		7	64.5	56.8	-7.7	*	6	5.0	13.4	8.5	
W. VA.	7	MAY 31	MAY 29	-2		7	59.5	50.4	-9.1	*	6	15.2	4.7	-10.5	
SUBTOTAL	230	MAY 27	MAY 27	0		230	62.1	58.9	-3.2	***	211	11.8	10.6	-1.2	
NONHUNTING STATES															
CONN.	2	MAY 26	MAY 25	-1		2	49.0	49.0	0.0		2	10.0	10.0	0.0	
IND.	13	MAY 29	MAY 30	1		13	58.5	54.2	-4.3		13	15.2	9.7	-5.5	*
MAINE 3/	4	JUNE 4	JUNE 6	2		4	49.1	50.5	1.4		4	0.0	0.8	0.8	
MASS.	2	JUNE 7	MAY 26	-12		2	52.6	47.9	-4.6		0	0.0	0.0	0.0	
MICH.	16	MAY 31	JUNE 2	2		16	51.3	49.7	-1.6		14	8.3	7.6	-0.7	
N.H. 3/	3	JUNE 8	MAY 31	-8		3	57.0	49.6	-7.4		3	6.3	10.2	3.9	
N.J.	2	MAY 24	MAY 24	0		2	62.0	51.0	-11.0		2	56.3	51.2	-5.1	
N.Y.	6	JUNE 3	JUNE 1	-2		6	64.1	44.9	-19.2	**	5	4.2	3.8	-0.4	
OHIO	7	JUNE 3	JUNE 4	1		7	58.9	56.8	-2.2		7	9.3	11.7	2.4	
VT. 3/	1	JUNE 1	JUNE 2	1		1	60.0	42.0	-18.0		1	10.0	10.0	0.0	
WIS.	14	JUNE 3	MAY 31	-3	*	14	53.7	44.6	-9.0	*	9	6.8	8.5	1.8	
SUBTOTAL	62	JUNE 1	JUNE 1	0		62	56.0	49.3	-6.6	***	52	9.9	9.4	-0.5	
TOTAL	292	MAY 29	MAY 28	0		292	60.4	56.2	-4.2	***	263	11.3	10.3	-1.0	

TABLE 2.--FACTORS ASSOCIATED WITH THE MOURNING DOVE CALL-COUNT SURVEY, 1970-71--CONTINUED

CENTRAL MANAGEMENT UNIT

	DATE OF SURVEY 1/				TEMPERATURE AT START 1/					HIGH DISTURBANCE (%) 1,2/				
STATES	ROUTES	1970	1971	CHANGE	ROUTES	1970	1971	CHANGE		ROUTES	1970	1971	CHANGE	
HUNTING STATES														
ARK.	14	MAY 29	MAY 24	-5	**	14	61.2	57.6	-3.6	*	11	6.3	4.8	-1.5	
COLO.	11	MAY 27	MAY 28	1		11	42.7	42.5	-0.2		7	4.2	5.2	0.9	
KANS.	18	MAY 31	MAY 30	-1		18	57.9	56.8	-1.2		15	7.5	4.6	-2.9	
MO.	14	MAY 24	MAY 25	1		14	61.3	49.2	-12.0	***	14	9.7	11.5	1.9	
N. MEX.	12	MAY 26	MAY 25	-1		12	54.7	47.5	-7.3	**	10	6.9	11.8	4.9	
OKLA.	2	JUNE 1	MAY 29	-3		2	67.7	56.1	-11.6		1	0.0	0.0	0.0	
S. DAK.	11	MAY 29	MAY 28	-1		11	47.9	43.7	-4.1		11	2.2	5.8	3.6	
TEX.	41	MAY 25	MAY 24	-1		41	62.8	64.4	1.6		28	10.1	10.1	-0.0	
SUBTOTAL	123	MAY 27	MAY 26	-1		123	57.4	54.4	-3.0	***	97	7.5	8.3	0.8	*
NONHUNTING STATES														
IOWA	13	MAY 31	MAY 26	-5		13	55.3	45.9	-9.4	**	9	0.5	6.8	6.3	
MINN.	9	JUNE 1	MAY 27	-5	*	9	52.0	42.6	-9.3	***	9	0.7	9.7	9.0	
MONT.	6	MAY 28	MAY 29	1		6	46.2	45.4	-0.9		4	0.0	7.1	7.1	
N. DAK.	20	MAY 29	MAY 26	-3	**	20	47.5	44.4	-3.1		18	7.8	7.2	-0.5	
NEBR.	21	MAY 31	MAY 29	-2		21	51.5	47.3	-4.2		17	5.7	3.5	-2.1	
WYO.	4	JUNE 2	MAY 31	-2		4	37.4	41.2	3.8		5	1.3	4.5	3.2	
SUBTOTAL	73	MAY 30	MAY 28	-2		73	48.6	44.8	-3.9	**	60	2.9	7.3	4.4	
TOTAL	196	MAY 28	MAY 27	-1		196	54.1	50.8	-3.3	***	159	5.6	7.6	2.0	

TABLE 2.--FACTORS ASSOCIATED WITH THE MOURNING DOVE CALL-COUNT SURVEY, 1970-71--CONTINUED

WESTERN MANAGEMENT UNIT

STATES	DATE OF SURVEY 1/ ROUTES	1970	1971	CHANGE	TEMPERATURE AT START 1/ ROUTES	1970	1971	CHANGE	HIGH DISTURBANCE (%) 1,2/ ROUTES	1970	1971	CHANGE
					HUNTING STATES							
ARIZ.	40	MAY 29	MAY 27	-2 *	40	54.1	48.2	-5.9 ***	23	6.0	9.4	3.3
CALIF.	35	MAY 28	MAY 29	1	35	55.7	52.6	-3.1	29	11.0	14.2	3.2
IDAHO	12	MAY 27	MAY 29	2	12	44.8	44.5	-0.3	11	7.3	11.0	3.7
NEV.	14	MAY 29	MAY 28	-1	14	43.8	41.4	-2.4	12	2.5	0.8	-1.7
OREG.	15	MAY 23	MAY 22	-1	15	45.2	39.4	-5.9 **	12	6.0	4.0	-1.9
UTAH	13	MAY 29	MAY 30	1	13	48.6	44.6	-4.0 *	8	11.6	2.2	-9.5
WASH.	10	MAY 26	MAY 26	0	10	48.6	47.8	-0.7	10	7.2	12.5	5.3
TOTAL	139	MAY 27	MAY 28	1	139	49.4	46.0	-3.4 ***	105	7.5	8.1	0.6 **

UNITED STATES SUMMARY

STATES	DATE OF SURVEY 1/ ROUTES	1970	1971	CHANGE	TEMPERATURE AT START 1/ ROUTES	1970	1971	CHANGE	HIGH DISTURBANCE (%) 1,2/ ROUTES	1970	1971	CHANGE
HUNT	492	MAY 27	MAY 27	0	492	56.1	52.9	-3.2 ***	413	8.7	8.9	0.2 *
NONHUNT	135	MAY 31	MAY 29	-2	135	51.0	46.2	-4.8 ***	112	5.4	8.0	2.7
TOTAL	627	MAY 28	MAY 27	-1	627	54.8	51.2	-3.6 ***	525	7.9	8.7	0.8

1/ DATA FROM COMPARABLE RANDOMIZED ROUTES ADJUSTED FOR VARIATION IN LAND AREA OF EACH PHYSIOGRAPHIC REGION. CALCULATIONS PERFORMED USING 3 SIGNIFICANT POSITIONS. CHANGE EQUALS THE ARITHMETIC DIFFERENCE. THE NUMBER OF ASTERISKS REPRESENT THE STATISTICAL SIGNIFICANCE LEVEL OF CHANGE: * 90 PERCENT; ** 95 PERCENT; *** 99 PERCENT.

2/ PERCENT OF STOPS (LISTENING STATIONS) WITH THE LEVEL OF DISTURBANCE GREAT ENOUGH TO SERIOUSLY LIMIT AN OBSERVER'S ABILITY TO HEAR CALLING DOVES. 20-STOP SURVEY ROUTES.

3/ STATE DATA NOT REPRESENTED IN MANAGEMENT UNIT MEANS.

TABLE 3.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDEXES BY STATE, 1961-71

EASTERN MANAGEMENT UNIT

STATE	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 1.2/ 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	LINEAR REGRESSION, 1961-71 PERCENT CHANGE TOTAL	ANNUAL	STAT. SIGN. 3/
HUNTING STATES															
ALA.	33.32	19.4	18.9	16.3	21.1	20.5	20.5	19.8	17.1	20.8	18.3	16.6	-5.3	-0.5	N.S.
DEL.	1.29	4.6	5.6	5.1	4.4	5.1	3.8	7.5	5.2	5.0	11.1	3.7	42.0	3.6	N.S.
FLA.	35.82	9.4	11.4	9.8	11.2	10.5	9.4	9.1	7.6	7.8	9.0	6.3	-32.5	-3.9	P .99
GA.	37.82	14.4	16.8	14.4	22.5	18.5	13.1	15.4	14.2	15.5	18.9	12.6	-9.3	-1.0	N.S.
ILL.	35.09	32.3	26.3	26.9	24.3	23.5	27.0	27.9	27.0	22.1	26.5	21.3	-18.7	-2.0	P .90
KY.	26.08	28.2	28.6	27.0	30.4	32.5	35.3	29.9	26.2	26.1	24.2	23.9	-15.5	-1.7	N.S.
LA.	31.14	17.8	14.2	16.6	13.6	11.6	7.7	8.9	7.4	7.5	7.5	7.6	-66.5	-10.3	P .99
MD.	6.55	14.4	15.8	16.1	16.1	16.0	15.2	20.1	17.5	16.7	20.0	18.9	29.5	2.6	P .99
MISS.	30.63	33.2	35.4	30.5	35.1	36.8	33.6	27.7	26.4	28.5	30.1	33.8	-13.5	-1.4	N.S.
N.C.	22.51	17.3	19.0	21.0	21.9	24.8	26.4	21.4	22.7	18.4	18.9	12.6	-14.0	-1.5	N.S.
PA.	29.01	9.9	8.2	5.6	7.2	7.4	8.7	11.9	9.0	9.8	7.1	6.7	0.6	0.1	N.S.
R.I. 4/	0.67	3.2	3.5	3.5	5.6	3.8	4.4	5.6	9.4	8.8	3.0	8.7	148.3	9.6	P .95
S.C.	19.99	25.5	23.0	23.0	24.1	35.3	34.4	34.2	33.1	33.8	27.9	28.9	30.7	2.7	P .90
TENN.	27.07	30.2	34.8	29.2	28.1	30.4	30.4	22.3	23.5	22.5	34.8	31.2	-9.7	-1.0	N.S.
VA.	26.05	28.7	24.8	25.2	29.0	24.0	29.1	23.6	31.8	24.4	21.6	18.7	-19.3	-2.1	N.S.
W. VA.	15.41	21.0	44.0	18.5	23.4	22.6	9.8	5.0	5.0	5.7	6.6	5.7	-97.6	-26.0	P .99
SUBTOTAL	377.78	21.5	22.2	19.8	21.9	22.0	21.2	19.6	18.9	18.4	19.3	17.2	-18.6	-2.0	P .99
NONHUNTING STATES															
CONN.	3.23	3.5	3.5	3.0	2.4	1.9	2.9	4.5	4.9	1.2	4.5	4.9	43.3	3.7	N.S.
IND.	23.36	28.3	23.4	26.8	27.7	20.2	37.2	38.6	41.7	40.2	41.1	52.0	115.3	8.0	P .99
MAINE 4/	19.85	2.0	2.5	1.5	0.0	0.5	0.0	0.0	0.8	1.2	0.0	0.0	-107.6	-58.7	P .95
MASS.	5.31	6.9	9.0	5.2	6.7	7.7	11.0	14.5	4.9	1.4	6.1	6.6	-23.3	-2.6	N.S.
MICH.	37.18	14.8	11.8	17.4	13.2	8.0	12.3	11.9	9.1	11.8	10.6	14.9	-17.1	-1.9	N.S.
N.H. 4/	5.80	0.8	0.6	0.6	1.1	1.9	1.4	0.9	0.8	0.7	0.8	2.9	131.5	8.8	N.S.
N.J.	4.91	29.0	28.8	29.5	30.4	25.7	24.2	20.1	30.0	26.3	32.9	36.5	12.8	1.2	N.S.
N.Y.	30.49	7.2	8.3	7.8	7.0	7.1	7.9	7.8	6.8	5.8	4.7	4.2	-37.9	-4.6	P .99
OHIO	26.42	17.9	21.4	17.5	16.8	19.1	26.3	25.5	27.0	30.6	34.0	26.2	86.3	6.4	P .99
VT. 4/	5.95	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.4	0.0	200.0	11.7	N.S.
WIS.	36.07	18.1	12.7	14.1	15.2	16.1	11.1	13.5	11.4	9.8	8.8	11.9	-39.2	-4.8	P .99
SUBTOTAL	166.97	10.4	14.7	16.0	15.2	13.4	17.1	17.6	17.0	17.1	17.5	19.5	23.2	2.1	P .95
TOTAL	544.75	20.0	19.9	18.6	19.8	19.4	20.0	19.0	18.3	18.0	18.8	17.9	-9.1	-1.0	P .99

TABLE 3.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDEXES BY STATE, 1961-71--CONTINUED

CENTRAL MANAGEMENT UNIT

STATE	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 1,2/ 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	LINEAR REGRESSION, 1961-71 PERCENT CHANGE TOTAL	ANNUAL	STAT. SIGN. 3/
HUNTING STATES															
ARK.	34.37	19.0	10.5	16.0	16.8	14.8	16.5	20.7	20.0	22.3	22.9	24.3	71.6	5.5	P .99
COLO.	67.18	13.8	13.8	11.0	13.1	11.5	14.8	16.1	13.7	19.7	20.5	18.8	66.8	5.3	P .99
KANS.	52.43	55.2	56.2	49.8	53.1	48.2	51.8	60.3	59.2	65.6	60.7	58.9	19.1	1.8	P .95
MO.	45.10	45.2	42.7	36.7	40.2	36.0	39.3	36.6	39.1	25.2	31.1	29.2	-33.7	-4.0	P .99
N. MEX.	77.98	21.8	19.2	18.1	20.6	19.3	28.4	8.5	16.0	11.0	10.4	9.2	-55.4	-7.7	P .95
OKLA.	44.40	41.6	36.4	39.9	37.7	34.6	29.3	37.9	41.3	33.9	30.9	17.0	-33.4	-4.0	P .95
S. DAK.	49.20	48.5	37.4	40.6	39.0	35.1	45.3	28.2	32.9	30.1	31.9	38.2	-26.5	-3.0	P .90
TEX.	170.03	18.6	19.4	17.7	17.4	16.4	17.8	16.8	15.8	15.1	17.3	17.2	-12.8	-1.4	P .95
SUBTOTAL	540.69	28.9	26.7	25.4	26.3	24.0	27.4	24.4	25.7	24.2	24.9	23.6	-12.6	-1.3	P .95
NONHUNTING STATES															
IOWA	36.15	38.3	37.1	33.5	34.9	29.0	33.2	34.1	30.7	25.8	19.1	23.1	-40.9	-5.1	P .99
MINN.	54.09	19.3	15.9	16.2	20.5	18.6	18.7	16.7	19.1	10.0	8.2	12.3	-40.5	-5.1	P .95
MONT.	94.47	15.7	10.4	15.1	15.4	15.7	17.1	18.7	5.7	6.6	5.0	6.5	-58.6	-8.4	P .95
NEBR.	49.69	88.6	69.9	58.7	66.1	55.6	48.5	40.0	47.8	47.7	47.2	45.8	-48.1	-6.3	P .99
N. DAK.	45.54	22.3	20.1	20.0	20.2	23.4	20.7	20.7	24.2	20.2	17.2	17.6	-12.2	-1.3	N.S.
WYO.	62.33	11.8	10.8	12.7	9.8	12.1	15.9	13.0	9.3	20.6	18.3	9.0	31.9	2.8	N.S.
SUBTOTAL	342.27	29.4	24.1	23.8	25.2	23.7	23.9	22.3	19.7	19.5	17.1	16.8	-38.3	-4.7	P .99
TOTAL	882.96	29.1	25.7	24.8	25.9	23.9	26.1	23.6	23.3	22.4	21.9	21.0	-22.7	-2.5	P .99

TABLE 3.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDEXES BY STATE, 1961-71--CONTINUED

WESTERN MANAGEMENT UNIT

STATE	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 1,2/ 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	LINEAR REGRESSION, 1961-71 PERCENT CHANGE TOTAL	ANNUAL	STAT. SIGN. 3/
HUNTING STATES															
ARIZ.	72.65	34.3	23.8	22.7	27.6	26.6	30.4	27.6	23.8	27.0	19.6	14.0	-33.6	-4.0	P .95
CALIF.	101.71	26.0	29.2	29.2	32.0	21.6	17.3	14.2	12.0	11.5	11.0	11.2	-72.9	-12.1	P .99
IDAHO	54.37	18.0	18.3	18.3	20.6	19.4	18.6	17.8	18.0	17.0	22.3	23.2	15.9	1.5	N.S.
NEV.	71.27	2.3	1.2	1.8	2.9	2.7	4.0	4.4	8.2	6.3	5.8	3.3	270.0	14.1	P .95
OREG.	62.27	21.2	18.2	16.8	18.1	14.1	14.0	12.9	13.2	14.9	10.2	11.7	-45.0	-5.8	P .99
UTAH	53.34	14.8	13.6	13.4	12.9	13.7	14.8	22.2	12.3	8.6	7.1	12.5	-26.5	-3.0	N.S.
WASH.	43.87	9.2	11.0	9.8	13.2	13.1	13.3	11.4	10.5	11.1	12.3	12.4	15.1	1.4	N.S.
TOTAL	459.48	19.1	17.7	17.3	19.5	16.4	16.3	15.7	14.0	13.9	12.4	12.2	-36.4	-4.4	P .99

UNITED STATES SUMMARY

STATE	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 1,2/ 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	LINEAR REGRESSION, 1961-71 PERCENT CHANGE TOTAL	ANNUAL	STAT. SIGN. 3/
HUNT	1377.95	23.6	22.4	21.2	22.8	20.9	22.0	20.2	19.9	19.2	19.2	18.1	-20.7	-2.3	P .99
NONHUNT	509.24	25.2	21.0	21.2	22.4	20.4	21.6	20.8	18.8	18.7	17.3	17.7	-25.8	-2.9	P .99
TOTAL	1887.19	24.0	22.0	21.2	22.7	20.8	21.9	20.4	19.6	19.0	18.7	18.0	-22.1	-2.5	P .99

1/ THE AVERAGE NUMBER OF DOVES HEARD PER ROUTE ADJUSTED ANNUALLY TO A BASE YEAR ACCORDING TO THE PERCENT CHANGE FROM PRECEDING YEAR ON COMPARABLE ROUTES. EXCEPT AS NOTED, 1967 SELECTED AS BASE YEAR, REPRESENTING THE MEAN NUMBER OF DOVES HEARD ON COMPARABLE ROUTES RUN IN BOTH 1966 AND 1967. MAINE, N.H., R.I., AND VT. INDEXES ASSIGNED 1971 BASE YEAR, REPRESENTING THE MEAN NUMBER OF DOVES HEARD ON COMPARABLE ROUTES RUN IN BOTH 1970 AND 1971. SEE TEXT FOR ADDITIONAL INFORMATION.

2/ UNIT AND SUBUNIT INDEXES DERIVED FROM WEIGHTED STATE VALUES (THIS TABLE) CARRIED TO 3 POSITIONS.

3/ STATISTICAL SIGNIFICANCE OF TRENDS: N.S. = NOT SIGNIFICANT (P<.90); N.E. = NO ESTIMATE AVAILABLE.

4/ STATE DATA NOT REPRESENTED IN MANAGEMENT UNIT MEANS.

TABLE 4.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDEXES BY PHYSIOGRAPHIC REGION, 1965-71

EASTERN MANAGEMENT UNIT

REGION	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 1,2/ 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	LINEAR REGRESSION, 1965-71 PERCENT CHANGE 3/ TOTAL	ANNUAL	STAT. SIGN. 4/
10	32.10	N.E.	N.E.	N.E.	N.E.	8.8	4.3	3.8	3.6	2.8	2.0	3.4	-72.4	-19.3	P .95
31	15.34	N.E.	N.E.	N.E.	N.E.	29.5	30.3	28.5	28.2	21.5	24.9	27.5	-17.1	-3.1	N.S.
32	16.40	N.E.	N.E.	N.E.	N.E.	53.0	39.3	45.8	47.9	44.5	39.6	40.1	-17.3	-3.1	N.S.
33	24.79	N.E.	N.E.	N.E.	N.E.	13.4	10.2	10.1	9.1	9.1	11.5	7.2	-30.4	-5.9	N.S.
34	63.72	N.E.	N.E.	N.E.	N.E.	26.8	22.9	20.6	17.7	20.4	21.2	19.9	-21.8	-4.0	N.S.
35	20.50	N.E.	N.E.	N.E.	N.E.	27.1	28.4	29.1	27.4	28.7	34.8	36.7	34.1	5.0	P .95
36	15.69	N.E.	N.E.	N.E.	N.E.	18.1	19.6	18.0	16.6	16.3	16.3	20.2	-2.3	-0.4	N.S.
37	33.14	N.E.	N.E.	N.E.	N.E.	12.1	12.7	11.8	10.5	16.0	17.6	8.5	5.4	0.9	N.S.
41	39.35	N.E.	N.E.	N.E.	N.E.	19.3	21.1	17.6	22.8	17.9	16.7	13.7	-25.7	-4.8	N.S.
42	3.51	N.E.	N.E.	N.E.	N.E.	14.6	24.1	24.6	35.7	31.4	27.3	31.5	67.9	9.0	P .90
51 5/	1.93	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
52	6.09	N.E.	N.E.	N.E.	N.E.	10.0	13.2	11.2	13.2	7.7	11.8	10.3	-9.7	-1.7	N.S.
61	17.62	N.E.	N.E.	N.E.	N.E.	25.6	25.6	20.5	16.4	19.1	33.0	24.8	10.5	1.7	N.S.
62	18.99	N.E.	N.E.	N.E.	N.E.	17.0	15.4	12.2	15.6	16.8	14.4	11.0	-20.4	-3.7	N.S.
70 5/	2.40	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	0.0	N.E.	0.0	0.0	0.0	0.0	0.0	N.S.
81	27.02	N.E.	N.E.	N.E.	N.E.	7.4	9.2	14.5	12.2	9.3	7.9	7.8	-13.8	-2.4	N.S.
82 5/	1.32	N.E.	N.E.	N.E.	N.E.	N.E.	3.0	0.0	1.0	0.0	0.0	0.0	-100.0	-85.9	N.S.
85	32.72	N.E.	N.E.	N.E.	N.E.	5.4	6.5	4.9	3.3	4.1	3.7	5.1	-28.6	-5.5	N.S.
86	7.27	N.E.	N.E.	N.E.	N.E.	11.2	10.8	7.9	9.4	9.7	9.5	7.1	-25.8	-4.8	P .90
91 5/	9.28	N.E.	N.E.	N.E.	N.E.	N.E.	28.7	35.3	17.8	4.7	10.2	11.3	-82.1	-29.1	P .90
92 5/	10.00	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	0.4	0.7	2.6	1650.0	318.3	N.S.
93 5/	20.12	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	0.0	0.0	0.0	0.0	0.0	N.S.
95 5/	1.64	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	1.5	1.5	1.5	3.9	2.0	93.6	18.0	N.S.
100 5/	6.71	N.E.	N.E.	N.E.	N.E.	N.E.	0.7	0.0	0.0	0.0	0.0	0.0	-100.0	-80.6	N.S.
111	25.51	N.E.	N.E.	N.E.	N.E.	43.3	45.1	39.3	38.5	35.6	35.1	37.8	-19.8	-3.6	P .95
112	6.70	N.E.	N.E.	N.E.	N.E.	18.2	31.3	17.0	14.2	20.8	17.7	18.1	-22.9	-4.2	N.S.
113	2.07	N.E.	N.E.	N.E.	N.E.	27.0	27.0	10.9	17.6	15.2	17.5	12.4	-51.3	-11.3	P .90
121	46.46	N.E.	N.E.	N.E.	N.E.	10.0	15.6	15.7	12.6	15.3	13.1	15.9	20.6	3.2	N.S.
123	12.09	N.E.	N.E.	N.E.	N.E.	22.7	18.6	23.0	19.8	15.3	16.0	19.8	-21.5	-4.0	N.S.
124	56.27	N.E.	N.E.	N.E.	N.E.	28.2	32.9	35.3	36.3	34.1	40.1	34.2	21.6	3.3	P .90
141	0.27	N.E.	N.E.	N.E.	N.E.	30.3	26.2	32.6	33.5	27.8	30.7	24.7	-8.8	-1.5	N.S.
TOTAL/ AVERAGE	577.02	N.E.	N.E.	N.E.	N.E.	19.4	20.0	19.0	18.3	18.0	18.8	17.9	-8.6	-1.5	P .95

TABLE 4.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDEXES BY PHYSIOGRAPHIC REGION, 1965-71--CONT.

CENTRAL MANAGEMENT UNIT

REGION	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 1,2/ 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	LINEAR REGRESSION, 1965-71 PERCENT CHANGE 3/ TOTAL	ANNUAL	STAT. SIGN. 4/
10	30.37	N.E.	N.E.	N.E.	N.E.	8.8	4.3	3.8	3.6	2.8	2.0	3.4	-72.4	-19.3	P .95
35	16.60	N.E.	N.E.	N.E.	N.E.	27.1	28.4	29.1	27.4	28.7	34.8	36.7	34.1	5.0	P .95
36	77.45	N.E.	N.E.	N.E.	N.E.	18.1	19.6	18.0	16.6	16.3	16.3	20.2	-2.3	-0.4	N.S.
122	64.68	N.E.	N.E.	N.E.	N.E.	34.1	37.0	33.6	35.5	27.4	25.1	30.5	-24.0	-4.5	P .90
123	2.54	N.E.	N.E.	N.E.	N.E.	22.7	18.6	23.0	19.8	15.3	16.0	19.8	-21.5	-4.0	N.S.
124	0.82	N.E.	N.E.	N.E.	N.E.	28.2	32.9	35.3	36.3	34.1	40.1	34.2	21.6	3.3	P .90
125	58.68	N.E.	N.E.	N.E.	N.E.	38.9	46.5	43.1	50.8	37.7	33.2	38.3	-16.1	-2.9	N.S.
126	71.40	N.E.	N.E.	N.E.	N.E.	35.4	36.0	43.3	43.6	37.9	43.1	38.6	10.4	1.7	N.S.
130	14.35	N.E.	N.E.	N.E.	N.E.	50.9	67.8	37.4	49.3	45.3	41.5	37.5	-32.4	-6.3	N.S.
131	46.47	N.E.	N.E.	N.E.	N.E.	18.5	15.7	12.9	20.7	24.1	19.6	22.3	41.1	5.9	N.S.
132	81.54	N.E.	N.E.	N.E.	N.E.	41.1	45.0	37.1	23.0	21.0	18.4	23.2	-61.3	-14.6	P .95
133 5/	2.89	N.E.	N.E.	N.E.	N.E.	5.0	5.0	0.0	N.E.	41.0	71.1	23.2	-32.9	-18.1	N.S.
134	97.09	N.E.	N.E.	N.E.	N.E.	27.5	22.0	20.0	24.2	23.8	22.9	22.6	-8.0	-1.4	N.S.
135	25.78	N.E.	N.E.	N.E.	N.E.	50.8	53.1	61.7	59.3	64.8	66.7	61.6	25.4	3.8	P .95
136	16.40	N.E.	N.E.	N.E.	N.E.	16.6	15.4	14.7	12.6	19.4	20.7	10.9	-2.5	-0.4	N.S.
137	10.54	N.E.	N.E.	N.E.	N.E.	2.3	11.0	4.2	6.1	7.4	11.1	9.4	113.1	13.4	N.S.
138	19.75	N.E.	N.E.	N.E.	N.E.	114.3	165.0	28.7	41.6	14.8	17.3	4.9	-100.0	-90.3	P .95
139	22.05	N.E.	N.E.	N.E.	N.E.	1.8	1.6	24.5	8.7	19.8	17.0	9.6	161.9	17.4	N.S.
141	27.75	N.E.	N.E.	N.E.	N.E.	30.3	26.2	32.6	33.5	27.8	30.7	24.7	-8.8	-1.5	N.S.
142	3.11	N.E.	N.E.	N.E.	N.E.	19.4	7.4	5.0	2.3	3.5	2.3	1.9	-100.0	-85.9	P .95
151	4.70	N.E.	N.E.	N.E.	N.E.	6.7	20.2	13.0	21.0	21.5	15.9	20.6	71.3	9.4	N.S.
152	6.98	N.E.	N.E.	N.E.	N.E.	3.0	3.0	3.3	3.9	4.9	3.3	5.0	59.7	8.1	P .90
160	28.53	N.E.	N.E.	N.E.	N.E.	2.9	5.1	2.6	4.4	7.5	5.2	4.3	56.0	7.7	N.S.
170	24.23	N.E.	N.E.	N.E.	N.E.	10.9	14.5	17.2	8.1	13.4	17.9	12.2	11.5	1.8	N.S.
180	23.58	N.E.	N.E.	N.E.	N.E.	3.7	5.6	6.4	7.7	7.7	7.4	5.8	47.0	6.6	N.S.
190	33.18	N.E.	N.E.	N.E.	N.E.	8.2	9.9	7.1	6.1	7.2	8.2	10.3	8.1	1.3	N.S.
212	4.68	N.E.	N.E.	N.E.	N.E.	8.2	22.7	55.7	9.9	14.4	5.4	17.5	-42.3	-8.8	N.S.
213	6.02	N.E.	N.E.	N.E.	N.E.	0.9	1.4	4.0	4.2	6.2	8.1	9.5	1942.0	65.3	P .99
214	11.49	N.E.	N.E.	N.E.	N.E.	8.3	16.9	7.1	9.0	10.3	8.8	4.8	-42.7	-8.9	N.S.
216	7.07	N.E.	N.E.	N.E.	N.E.	84.7	75.6	28.7	46.5	20.6	17.9	48.7	-70.0	-18.2	P .90
224	31.91	N.E.	N.E.	N.E.	N.E.	20.5	18.7	16.8	15.2	15.5	13.2	14.4	-33.5	-6.6	P .99
225 5/	10.33	N.E.	N.E.	N.E.	N.E.	N.E.	5.6	2.2	3.9	6.1	12.3	N.E.	N.E.	N.E.	N.E.
TOTAL/ AVERAGE	882.96	N.E.	N.E.	N.E.	N.E.	23.9	26.1	23.6	23.3	22.4	21.9	21.0	-15.6	-2.8	P .95

REGION	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 1,2/ 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	LINEAR REGRESSION, 1965-71 PERCENT CHANGE 3/ TOTAL	ANNUAL	STAT. SIGN. 4/
180	8.00	N.E.	N.E.	N.E.	N.E.	3.7	5.6	6.4	7.7	7.7	7.4	5.8	47.0	6.6	N.S.
190	32.19	N.E.	N.E.	N.E.	N.E.	8.2	9.9	7.1	6.1	7.2	8.2	10.3	8.1	1.3	N.S.
201	27.15	N.E.	N.E.	N.E.	N.E.	8.9	9.9	9.0	11.2	9.1	8.3	9.9	0.1	0.0	N.S.
202	5.05	N.E.	N.E.	N.E.	N.E.	6.5	7.2	5.8	8.4	5.9	7.5	7.5	12.1	1.9	N.S.
203	19.43	N.E.	N.E.	N.E.	N.E.	6.8	16.0	21.1	16.4	17.3	18.6	22.7	90.0	11.3	P .90
204	11.00	N.E.	N.E.	N.E.	N.E.	12.2	23.3	22.2	20.9	14.4	22.6	18.1	9.9	1.6	N.S.
205	6.17	N.E.	N.E.	N.E.	N.E.	92.8	172.3	39.8	30.9	44.3	28.7	15.7	-95.2	-39.7	P .90
211	8.20	N.E.	N.E.	N.E.	N.E.	7.7	10.2	9.5	5.0	0.0	6.7	14.4	10.2	1.6	N.S.
212	5.96	N.E.	N.E.	N.E.	N.E.	8.2	22.7	55.7	9.9	14.4	5.4	17.5	-42.3	-8.8	N.S.
213	12.24	N.E.	N.E.	N.E.	N.E.	0.9	1.4	4.0	4.2	6.2	8.1	9.5	1942.0	65.3	P .99
214	12.54	N.E.	N.E.	N.E.	N.E.	8.3	16.9	7.1	9.0	10.3	8.8	4.8	-42.7	-8.9	N.S.
215	13.78	N.E.	N.E.	N.E.	N.E.	6.9	11.8	13.7	10.0	29.2	14.4	12.6	81.0	10.4	N.S.
216	1.46	N.E.	N.E.	N.E.	N.E.	84.7	75.6	28.7	46.5	20.6	17.9	48.7	-70.0	-18.2	P .90
221	115.89	N.E.	N.E.	N.E.	N.E.	11.1	11.5	14.1	13.8	10.2	9.0	9.1	-25.0	-4.7	N.S.
222	35.86	N.E.	N.E.	N.E.	N.E.	50.0	49.5	36.8	31.1	27.6	18.7	14.4	-73.7	-20.0	P .99
223	4.20	N.E.	N.E.	N.E.	N.E.	25.4	21.9	22.4	18.5	19.6	26.1	27.9	12.8	2.0	N.S.
224	24.20	N.E.	N.E.	N.E.	N.E.	20.5	18.7	16.8	15.2	15.5	13.2	14.4	-33.5	-6.6	P .99
231	7.99	N.E.	N.E.	N.E.	N.E.	16.9	12.1	11.9	12.2	15.2	11.2	9.5	-29.9	-5.7	N.S.
232	14.07	N.E.	N.E.	N.E.	N.E.	7.9	8.1	5.5	4.9	3.0	2.1	4.4	-68.5	-17.5	P .95
233 5/	4.42	N.E.	N.E.	N.E.	N.E.	46.6	20.0	19.0	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
234	16.87	N.E.	N.E.	N.E.	N.E.	11.0	12.2	11.9	10.9	9.3	10.7	8.9	-21.3	-3.9	P .90
241	8.84	N.E.	N.E.	N.E.	N.E.	0.5	0.0	2.5	2.5	0.8	0.8	0.0	-28.9	-5.5	N.S.
242	2.95	N.E.	N.E.	N.E.	N.E.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N.S.
243	8.29	N.E.	N.E.	N.E.	N.E.	28.2	10.1	4.0	28.2	2.0	6.0	4.0	-85.9	-27.8	N.S.
244	10.48	N.E.	N.E.	N.E.	N.E.	6.6	5.4	4.9	6.8	7.3	7.1	8.7	47.6	6.7	P .90
245	13.01	N.E.	N.E.	N.E.	N.E.	20.5	15.3	12.6	13.3	13.5	11.1	14.0	-33.8	-6.6	P .90
246	19.64	N.E.	N.E.	N.E.	N.E.	31.2	26.2	22.8	23.5	21.3	21.1	21.2	-31.5	-6.1	P .95
247	8.10	N.E.	N.E.	N.E.	N.E.	7.4	5.2	4.3	1.8	6.0	6.0	3.2	-33.8	-6.6	N.S.
250 5/	1.50	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
TOTAL/ AVERAGE	459.48	N.E.	N.E.	N.E.	N.E.	16.4	16.3	15.7	14.0	13.9	12.4	12.2	-28.3	-5.4	P .99

TABLE 4.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDEXES BY PHYSIOGRAPHIC REGION, 1965-71

1/ THE AVERAGE NUMBER OF DOVES HEARD PER ROUTE ADJUSTED ANNUALLY TO A BASE YEAR ACCORDING TO THE PERCENT CHANGE FROM PRECEDING YEAR ON COMPARABLE ROUTES. THE BASE YEAR REPRESENTS THE MEAN NUMBERS OF DOVES HEARD PER ROUTE IN 1968, 1969, AND 1970; THE RESULTANT VALUE BEING ASSIGNED TO 1969. N.E. = NO ESTIMATE AVAILABLE.

WHEN A PHYSIOGRAPHIC REGION IS BISECTED BY A MANAGEMENT UNIT BOUNDARY, ITS MEAN BREEDING DENSITY INDEX IS ASSIGNED TO BOTH UNITS.

2/ THE MANAGEMENT UNIT BREEDING INDEXES ARE OBTAINED FROM TABLE A3.

3/ REGRESSION ANALYSIS: (1) 0.0 CALCULATED AS 0.0001.
(2) ANNUAL PERCENT CHANGE GREATER THAN 999 EQUALS NO ESTIMATE (N.E.).

4/ STATISTICAL SIGNIFICANCE OF TREND: N.S. = NOT SIGNIFICANT ($P<.90$); N.E. = NO ESTIMATE AVAILABLE.

5/ LINEAR REGRESSION ANALYSIS FROM MOST RECENT AVAILABLE DATA, RESULTS NOT COMPARABLE TO OTHER ANALYSES.

U. S. GOVERNMENT PRINTING OFFICE : 1972 O - 476-486